

**Original citation:**

Day, Sophie E. and Lury, Celia. (2016) New technologies of the observer : #BringBack, Visualization and Disappearance. Theory, Culture & Society.

**Permanent WRAP URL:**

<http://wrap.warwick.ac.uk/88218>

**Copyright and reuse:**

The Warwick Research Archive Portal (WRAP) makes this work by researchers of the University of Warwick available open access under the following conditions. Copyright © and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable the material made available in WRAP has been checked for eligibility before being made available.

Copies of full items can be used for personal research or study, educational, or not-for profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

**Publisher's statement:**

This had been posted ahead of publication.

Day, Sophie E. and Lury, Celia. (2016) New technologies of the observer : #BringBack, Visualization and Disappearance. Theory, Culture & Society. Copyright © 2017 The Authors. Reprinted by permission of SAGE Publications.

<http://journals.sagepub.com/home/tcs>

**A note on versions:**

The version presented here may differ from the published version or, version of record, if you wish to cite this item you are advised to consult the publisher's version. Please see the 'permanent WRAP url' above for details on accessing the published version and note that access may require a subscription.

For more information, please contact the WRAP Team at: [wrap@warwick.ac.uk](mailto:wrap@warwick.ac.uk)

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

#BringBack: across the shifting grounds of observation

For Peer Review

When [Wittgenstein] says, "if the color changes you are no longer looking at the one I meant," the ground is suddenly pulled out from under you. How did the color change? Who, or what, was the agent? (Bochner, 2008: 202)

## Introduction

In her book *Close Up at a Distance*, Laura Kurgan discusses a well-known series of images of the planet earth that began with *The Blue Marble*, a photographic view of the earth as seen by the Apollo 17 crew travelling towards the moon in 1972, and ended with the 2012 digital versions of this image. She describes these later versions as being,

... assembled from data collected by the Visible/Infrared Imager Radiometer Suite (VIIRS) on the Suomi NPP satellite in six orbits over eight hours. These versions are not simply photographs taken by a person traveling in space with a camera. They are composites of massive quantities of remotely sensed data collected by satellite-borne sensors. ... This is not the integrating vision of a particular person standing in a particular place or even floating in space. It's an image of something no human could see with his or her own eye ... because it's a full 360-degree composite, made of data collected and assembled over time, wrapped around a wireframe sphere to produce a view of the Earth at a resolution of at least half a kilometer per pixel – and any continent can be chosen to be at the center of the image. [Moreover] ... it can always be updated with new data. (2013: 11-12)

As a patchwork or composite of satellite data, this image has no (visible) edges: it is boundless and, as such, might lead us to imagine that contemporary visualization has no limits. Yet there are very many ways in which in-visibility or non-visibility can be achieved today, as Hito Steyerl's deadpan film *How Not to be Seen: A Fucking Didactic Educational.MOV File* (2013) demonstrates.

Partly set in a now disused photo calibration test site in a Californian desert<sup>i</sup> *How Not to be Seen* presents itself as an instructional video, educating viewers about how to remain invisible in an age of surveillance. Various possible strategies are identified, including camouflaging oneself (to demonstrate, Steyerl smears green paint on her face), cloaking and hiding in plain sight. Additionally, so a voice-over announces, you can be rendered invisible if you are poor, undocumented, living in a gated community or in a military zone, a woman over 50, if you own an 'anti-paparazzi handbag', are disappeared by the authorities, eradicated or annihilated, or if you are 'a dead pixel'. To demonstrate this last possibility,

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

several people appear on the screen, wearing black boxes on their heads, only to be faded out. Digitally rendered ghosts dance in the desert landscape as The Three Degrees' *When Will I See You Again?* plays on the soundtrack.

In this article, we analyse two very different examples of disappearance in terms of relations of observation: the disappearance of Malaysia Airlines Flight 370, and the 276 Nigerian girls who went 'missing' at about the same time in 2014. To focus on relations of observation, we suggest, is not to downplay the situations we describe: to the contrary, we propose sustained attention to relations of observation as a method for exploring how events take place. As part of this analysis, we put forward the term 'surface' as a way to highlight the ways in which relations of observation are constantly shifting, implying and sometimes precluding points of view, and shaping the contours of events by providing ever-changing conditions for visibility and invisibility across situations. However our concern with processes of 'surfacing' events is not to deny or minimize the importance of the complex materialities of observation. Following Crary, we believe that observation is not the purposeful, perceptual practice of an individual; rather, our presumption is that the observer is 'the effect of an irreducibly heterogeneous system of discursive, technological and institutional relations' (1990: 6).

In line with this understanding of the observer, our emphasis in exploring relations of observation is on vision as a holding term for many functions: 'a physical sense, a set of practices and discourses, and a metaphor that translates between different mediums and different communications systems' (Halpern 2014: 21). As Halpern points out, 'Vision is ... a discourse that multiplies and divides from within' (Halpern 2014: 21). In this regard, the history of the term 'visualization' is instructive: it is a relatively recent term, only appearing in the Oxford English Dictionary in 1883, and it was initially used to depict the formation of mental images of things 'not actually present in sight' (Halpern 2014: 21). In the decades that followed, however, it has come to mean any 'action or process of making visible':

Visualization slowly mutated from the description of human psychological processes to the larger terrain of rendering practices by machines, scientific instrumentation, and numeric measures. Most important, visualization came to define bringing that which is not already present into sight. Visualizations, according to current definition, make new relationships appear and produce new objects and spaces for action and speculation. (Halpern 2014: 21)

The proponents of second order cybernetics, as Halpern notes, were particularly important in securing this definition. They refused to treat vision as a series of discrete mechanisms, such as a causal chain of stimulus-response behaviour, proposing instead an analysis in which relations of feedback were central to the patterning of the relationship between 'the being seen' and 'the seer'.

The period following the formulation of this analysis has seen the development of an environment of large-scale automated data collection and surveillance that supports this understanding. Not only have the technical mechanisms of observing or collecting data multiplied but so too have the opportunities for feeding back or sharing these observations. As we have argued elsewhere (xx and xx in press), these opportunities for feedback have produced new opportunities for a variety of forms of tracking, all of which involve the repeated folding of data, or looping of observation, into analysis at defined intervals in time. This ongoing analysis turns traces into tracks as data are related, linked, or connected to each other, so allowing feedback to 'feed forward'. As a consequence, at the same time that 'knowledge is decentralized and distributed across persons, practices, documents and information infrastructure', the question becomes 'not simply 'who knows whom?' or 'who knows what?' but 'who knows who knows what?'" (Contractor, quoted in Stark 2009: 174). Indeed, some commentators have gone as far as suggesting that 'modern society has moved - in every field - from first-order observation to second-order observation' (Esposito 2013: 4)<sup>ii</sup>. We put forward instead an analysis focusing on *composition* ( ) as a way to explore the many layers, moving ratios and multiple dimensions of the surfacing of surfaces of visualization.

### Composing a surface of visualization

To illustrate our compositional approach we begin by introducing Flusser's nested analysis of 'the gesture of photography'<sup>iii</sup> (2014). Flusser starts with a quotidian situation: that of a man positioning a camera so as to take a photograph of another man sitting in a chair, smoking a pipe. He points out that even in such an apparently straightforward situation it is hard for the photographer to know where to position himself so as to get the right perspective, and give the object being photographed – in this case, the man with the pipe – the depth of vision that it requires to be seen. Describing this struggle, he observes,

The center of this situation is the man with the apparatus. He is moving. Still, it's awkward to say of a center that it is moving in relation to its own periphery. When a

center moves, it does so with respect to the observer, and the whole situation then moves as well. We must therefore concede that what we are seeing when we watch the man with the apparatus is a movement of the whole situation, including the man sitting on his chair. (2014: 74-5)

In other words, while the photographer might believe that he is positioning the camera so as to find the best standpoint from which to photograph a fixed situation, he is, if he is performing the gesture of photography rather than taking a picture, looking for the position that best corresponds to a situation that is moving.

Flusser then adds a further observation. He notes that we too are part of the moving situation. More specifically, he recursively folds himself - and us - into the gesture of photography:

... the man with his apparatus is the center of the situation only for us, watching him, not for himself. He believes himself to be outside the situation, for he is watching it. For him the man on the chair, at the center of his attention, is the center of the situation. (2014: 75)

In short, Flusser suggests that what is required of the photographer by the gesture of photography – moving to find a position from which to take a photograph of a situation which is changing as he moves - is also true of us as observers of the gesture: ‘we, too, are located in the space, watching the man with the apparatus’ (2014: 75). While we too might believe ourselves to be outside the situation, we are (also) inside. Although ‘our’ location could ‘mislead us’ into supposing that there are two different situations, ‘one in which the man with the apparatus, whom we transcend, is at the center and another in which the man on his chair is at the center and in which we are involved’, this is not the case. Instead, so Flusser asserts, ‘The two situations are different yet bound up with one another’ (2014: 75).

Flusser’s analysis of the gesture of photography is captured in the photograph we reproduce here (Figure 1). The image shows the positioning of the camera deemed necessary by the police to record the scene of a crime in the late nineteenth and early twentieth century: ‘[the image’s] center will pass exactly between the eyes of the cadaver – at the root of the nose’ ([http://www.vice.com/en\\_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876](http://www.vice.com/en_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876)). This position - directly above the object of concern – has since been institutionalised in a variety of forms of surveillance, including the aerial viewpoint of the bomber or the drone (Virilio 1989). This image might thus appear to demonstrate better

than many others that photography is produced from a position that is above or outside the situations that it observes. Yet the photograph is (also) an observation of an observation, and makes it clear that the position of the observer above or outside the situation is also, recursively, part of the situation. The assumption of a fixed position in a stratified hierarchy of observation is shown to be unstable since, from outside the image, we are already drawn into the context of observation.



Figure 1: Studio Demonstration of Bertillon's 'bec à gaz' camera technique, La Musée de la Préfecture de Police, Paris. (Image posted at VICE website)

By staging a halt to the gesture of photography with a different, orthogonal view on the vertical nature of the 'god's eye' view, the image makes visible the gesture of photography as the making of a surface in motion across situations.

Drawing on this analysis, we suggest that the operation of the gesture of photography described by Flusser is not restricted to photography but is enabled by a whole array of technical supports. We note, for example, the way in which the constantly changing organization of the relations established across the three sites of television - the place of recording, the place of reception, and the place of transmission - continually remake situations as (geo-political) events (Weber 1996). And we suggest that the event-making capacities of observation are rapidly changing across relations that now routinely,

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

recursively and massively take place between the military, governments, corporations and everyday users of location-based devices and applications. In short, our proposal is that the recursive binding together of situations described by Flusser as the gesture of photography is fundamental to the making of contemporary surfaces of visualisation. We turn now to our two examples to illustrate and expand this claim.

**The case of the disappearing plane**

It was widely reported that Malaysia Airlines Flight 370, a scheduled passenger flight from Kuala Lumpur to Beijing, lost contact with air traffic control on 8 March 2014 at 01:20 Malaysian time (MYT), less than an hour after takeoff. The aircraft was carrying 12 Malaysian crew and 227 passengers from 14 nations. No explanation of this disappearance has yet been officially confirmed although debris from the plane was recently found on a beach on the Pacific Ocean island, Réunion.<sup>iv</sup> In relation to this, our first case, we ask: how can a plane ‘disappear’? In a discussion elsewhere (in press), we proposed that the ‘disappearance’ is a consequence of a combination of ‘double blind’ and double bind.

Double blind is a term used by one of the architects of cybernetics, Heinz von Foerster (1995). A blind spot, or scotoma, is an obscuration of the visual field. A particular blind spot known as the physiological blind spot, or *punctum caecum*, is the place in the visual field that corresponds to the lack of light-detecting photoreceptor cells on the optic disc of the retina where the optic nerve passes. Since there are no cells to detect light on the optic disc at this point, the brain interpolates the blind spot based on surrounding detail and information from the other eye, with the result that the blind spot is not normally perceived. Von Foerster draws on this understanding in his presentation of the *double blind*; indeed, he sums up the long-established finding that each of our two eyes has a blind spot with the aphorism: ‘We do not see what we do not see’ (or as he put it elsewhere, ‘We do not see that we do not see’). A consequence of this double negative, we suggested, is a (false) positive, that is, a belief that we can see everywhere, as illustrated for example by contemporary versions of *The Blue Marble* (introduced above). As we pointed out, however, the plane’s disappearance demonstrated that ‘we’ cannot see always and everywhere (Figure 2), even with the aid of the huge technical complex of GPS, civilian and military satellites, drone cameras, GoogleMap and so on. The disappearance revealed that there are edges (which might appear as gaps, corridors, or out-of-focus patches) in today’s apparently boundless surface of visualization, even if we do not always know where they are or how they operate, where or when we might fall into a crevice or over an edge.



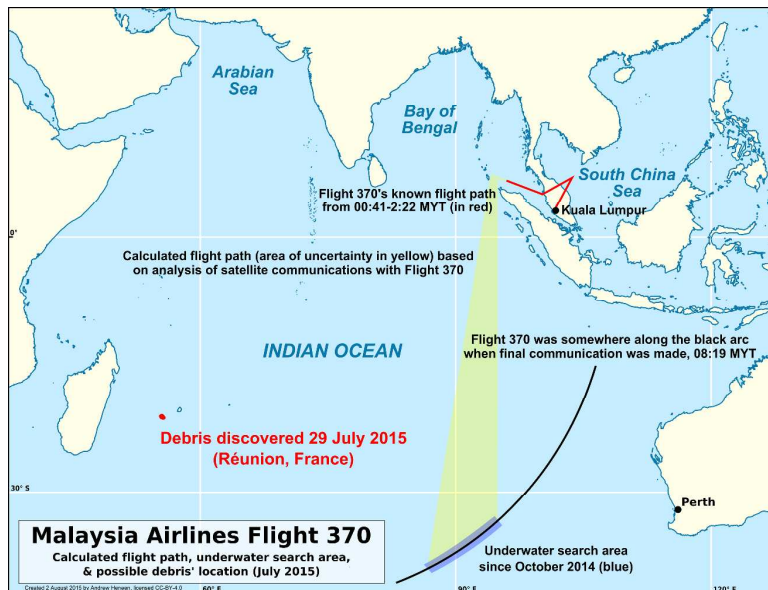


Figure 2: Map plotting the disappearance of Malaysia Airlines Flight 370 after debris was found in Reunion, compared with MH370 flight paths and underwater search area. By Andrew Heneen, created with public domain data from NaturalEarth.<sup>v</sup>

We thus considered it fundamental that this disappearance was visible even as the plane itself disappeared. Its visibility, we suggested, was a consequence of the operation of double blind and *double bind*, a phenomenon described by the anthropologist and fellow contributor to second order cybernetics, Gregory Bateson (1987). Bateson suggests that double bind – which he describes as ‘an experienced breach in the weave of contextual structure’ - is a characteristic of all adaptive change. Such change, he says, depends upon feedback loops, ‘be it those provided by natural selection or those of individual reinforcement’. He continues, ‘In all cases, then, there must be a process of trial and error and a mechanism of comparison.’ Significantly he further notes, ‘trial and error must always involve error, and error is always biologically and/or psychically expensive. It follows therefore that adaptive change must always be hierarchic’. The introduction of hierarchy is necessary (and beneficial) for Bateson since, ‘There is needed not only that first-order change which suits the immediate environmental (or physiological) demand but also second-order changes which will reduce the amount of trial and error needed to achieve the first-order change’. Here then Bateson argues that the introduction of hierarchy is a recursive process that is necessary for learning and for the adaptation of an entity to its environment: as he says, ‘And so on’ (1987: 201).

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

In observing some of the responses that made the disappearance of the plane visible we suggested that the *double bind* in operation for some, especially state observers, involved the co-existence of the injunction to ‘see everything’ (or at least the injunction, ‘do not see what you do not see’) and the contradictory injunction to ‘see nothing’ (which is to say, ‘do not see what you see’). Relatives in China and elsewhere personify the imperative to see everything; they focus the minds of state actors who do not want to admit the failure (of the fantasy) of total planetary observation that is the double blind hypothesis. However, in order for this double blind hypothesis to be preserved, observers who are differently situated in relation to the context(s) of observation needed to reveal to each other what they had (not) seen. But such comparison, as Bateson notes, has significant political ‘costs’ for such observers, especially for those observers acting on behalf of states who might reveal their own positions as they compare their observations with those of others. This dilemma intensifies a situation in which such observers simultaneously feel compelled to observe the injunction to not see what they do not see *and* to not see what they do see. These twin injunctions inform a slow dance of observe and (don’t) tell, the outcome of which, we suggested, was the creation of unstable hierarchies of first and second orders of observation. Yet the costs and opportunities of comparison can lead to other outcomes, as we suggest with reference to our second case.

**And so on: the Chibok abduction**

On April 14, 2014, 276 girls were kidnapped from a school in the north-east of Nigeria. This violence was attributed to Boko Haram, an organisation antagonistic to both the Nigerian regime, which is associated with the south of the country, and western powers: their name is commonly translated as ‘western education is sinful’. In this example too, we suggest, a disappearance is rendered visible but in this case the situations that are bound together do not establish the grounds for any, even unstable, hierarchies of observation.

We start then by recording some of the myriad observations made locally, nationally and internationally. First, citizens took to the streets of Abuja in protest and demanded the return of the girls, fifty-nine of whom had managed to escape shortly after their abduction. There was a rally in Cardiff, UK and hundreds of other cities; church congregations joined in prayer, and international church leaders in negotiation. One by one, the girls were

individually named. Speculation about their fate, about Boko Haram and the Nigerian state was rife.

The political impetus to find the girls was amplified globally in a hashtag campaign on Twitter, #BringBackOurGirls, which attracted commentary in turn. The campaign started in Nigeria<sup>vi</sup> and attracted the support of Michelle Obama (Figure 3), Malālah Yūsafzay, the Nobel Prize laureate and activist from Pakistan, and many others, who were bound together in outrage at the abduction of the young women. The First Lady's address of May 10<sup>th</sup> 2014 was given on the US holiday for honouring mothers.



Figure 3: Michelle Obama, #BringBackOurGirls, posted to her official Twitter account (Wikipedia, Chibok Schoolgirls Kidnapping, accessed May 2015)

One of the most emotive posters attached to #BringBackOurGirls was tweeted by rapper Chris Brown, as well as the US embassy in Madrid, Kim Kardashian and global girls' rights activist Becky Makoni among many others (Figure 4). The picture is of a girl from Guinea Bissau, a country more than 1,000 miles away from Nigeria, taken by photographer Ami Vitale in 2000, some considerable time before the abduction. The girl in question, Jenabu Balde, was not abducted and the teardrop running down her cheek was photoshopped in (Felicity Morse, 13 May 2014). By 7<sup>th</sup> May 2014, more than one million people had signed up to the Twitter campaign and, according to Wikipedia's hashtag activism entry, the photo has received over two million retweets.



Figure 4: #BringBackOurGirls image, shared by Chris Brown on Twitter, 1 May 2014

It only became clear to international observers gradually that the kidnapping was far from an isolated event. For example, just over a month before the girls were abducted in Chibok, 59 boys were shot or burned to death by Boko Haram at a secondary school in Yobe, Nigeria. To observers from the outside at least, it seemed unclear whether the Nigerian state would hold. On CBS News, the US Defence Secretary, Chuck Hagel asserted that it was an open question whether Nigerian forces were capable of rescuing the girls. The audience were told that the Muslim north would never vote for a Southern Christian president and so electoral mathematics could not justify a 'disproportionate' response. As the US deployed surveillance aircraft over the area with and without crew, White House spokesperson, Jay Carney, said there would be no active deployment of US forces in Nigeria because, 'we' don't know enough yet... what to recommend to Nigerians, where they need to go, what they need to do, to get those girls back' (Smith, Sherwood and Soal, 16 May 2014).

Kidnappings, executions and destruction continued in the north of Nigeria throughout 2014. A ceasefire announced in October did not last, and it was not until February 2015 that concerted military interventions by the Nigerian army in collaboration with neighbouring countries led to the reclamation of much of the territory held by Boko Haram, leaving them only the Sambisa forest. Many people were also rescued from this forest, including a group of nearly 300 women and children (BBC News, 4 May 2015). Some of those freed came from villages close to Chibok, but they did not include the missing young women.<sup>vii</sup>

On the anniversary of the abduction, April 14 2015, the Nigerian President Elect acknowledged, 'We do not know if the Chibok girls can be rescued. Their whereabouts remain unknown. As much as I wish to, I cannot promise that we can find them....' (Dearden, 14 April 2015). Around the world, vigils and marches were staged once more. In New York, the Empire State Building was lit up in red and purple in honour of the missing girls. Supporters from New Zealand to the United States again posted online, using the hashtags #365DaysOn, #ChibokGirls and #NeverToBeForgotten. Since then, sporadic reports, associated with videos and messages from Boko Haram, assert that the disappeared young women converted to Islam, now hate their parents, have been married off, sent into sexual slavery, or trained as suicide bombers (Nayar 2015).

The continuing speculation and dismay indicates that it has been difficult to establish a ground from which to make observations or to which the young women could be returned, let alone a ground in relation to which a hierarchy between first and second order observations could be established. To consider the difficulties of observation in this case, let us explore the Bringback hashtag campaign further. The observations on Twitter were made largely from the global north and west, and were often articulated from the position of mothers. Nayar (2015) suggests that the victims of the abduction 'were kidnapped for being girls.' She observes that the BringBack rhetoric in the USA 'shrewdly notes that educated girls are a rarity in Nigeria (5% of the total population)', and argues that the posts imply 'that by kidnapping them Boko Haram has stalled modernisation itself'. She argues that the role of maternal and filial testimonies was instrumental in harnessing the personal to the political, and the affective history (primarily of loss and anguish) of the family to the social history of the nation. Khoja-Moolji (2015) claims that hashtag feminism implies a certainty about the lives of 'girls' in the global south and its own role (from the global north) in alleviating their suffering, rearticulating longstanding colonial relations with campaigns of redress.<sup>viii</sup> Even though these analyses are enlightening, the radical uncertainty introduced into events by the gesture 'BringBack' can be demonstrated by the (im)possibility of a #BringBackOurBoys campaign on the part of Michelle Obama. We ask: would the hashtag #BringBackOurBoys have the ability to refer to what commentators see as homeland racist killings in the US, or campaigns for the return of US soldiers from one or more of the US military interventions taking place in other parts of the world, or the Israeli social media campaign that was launched in June 2014 by students of the University of Haifa? This

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

campaign called upon the international community for action after three teenage Israeli boys were abducted by pro-Palestinian militants and it was directly inspired by the #BringBackOurGirls campaign.<sup>ix</sup>

**Rendition**

Having briefly introduced our two cases, we now bring them together in a practice of comparison so as to ‘learn’ how relations of observation, including our own, operate across changing contexts. First, we return to Flusser’s analysis of the gesture of photography to highlight the way in which he conceptualizes this gesture in terms of three aspects that are recursively linked. He says,

A first aspect is the search for a place, a position from which to observe the situation. A second aspect is the manipulating of the situation, adapting it to the chosen position. The third aspect concerns critical distance that makes it possible to see the success or failure of this adaptation. (2014: 77)

It is the links across these three aspects, we suggest, that produce a surface in which the recursive doubling of the position of observer is neither mere duplication nor hierarchical subsumption of one position by the other, but something more complicated. In other words, the gesture of photography, as it is implemented in multiplying feedback loops, produces a surface that is always being made, un-made and re-made and as such is never coincident with itself. Put simply, we understand the doubling of observation in Flusser’s account of the photographic gesture to describe observation as (re-)entry into a surface of visualization that is changing, not least because it is itself the object of observation.

Flusser proposes that, ‘This view of ourselves in a situation (this ‘reflexive’ or ‘critical vision’) is characteristic of our being-in-the-world, and we see it, we ‘know’ about it’ (2014: 75). He says that this reflexive position is not an objective one. Indeed, he characterizes the photographic gesture, and more widely any gesture, as a release from a particular role and suggests that this release is just as available to the man with the apparatus inside the photograph as to the observer outside the image. Both, he suggests, are bound to a ‘place’ from which we can assert that ‘we are experiencing the same situation twice’. He says that this ‘place’ is ‘the basis for a consensus, for intersubjective recognition. If we encounter the man with the apparatus on this basis, we don’t see the situation ‘better’: rather, we see it intersubjectively, and we see ourselves intersubjectively’ (2014: 75-6). Our examples suggest, to the contrary, that ‘we’ are not experiencing the same situation twice.



Our first case suggests to us that double bind, double blind and first and second order observation may emerge as the outcomes of this process of recursion. As they happen, these compositional processes organise and reveal the surface in which they take place. Insofar as they involve a halting, pausing or momentary suspension in the process of recursion, they permit (collective) contemplation of what is visible and what is invisible, and also speculation about how visibility and in- or non-visibility are inter-related, and from which positions. But our second case demonstrates that these are not the only possible outcomes.

To develop an analysis that is adequate to both examples, we turn to consideration of doubling as recursion – ‘And so on’ as Bateson puts it. In this respect, it is worth noting that recursive functions are explicitly acknowledged to have a variety of effects in second order cybernetics: bi-stable, multi-stable or endless. It is also understood that recursive functions may not only be techniques for the production of composite images such as *The Blue Marble*, but are themselves composite. For example, while recursion is sometimes understood solely in terms of successor functions, that is, functions that operate on their own outcomes, the (algorithmic) recursion that is characteristic of today’s surfaces of visualisation typically comprises three different kinds of functions: zero, projection and successor functions (Totaro and Ninno 2014). In mathematical terms, zero functions are those functions whose value can be zero; in social scientific terms it is perhaps equivalent to the assumption or determination of *ceteris paribus* (that is, all other things being equal or held constant). Projection functions are those operations that allow for a mapping of one space onto another. Importantly, such mappings are one of the ways in which is possible to pass a subset of the arguments of one function to another function. Understood in more social terms, projection functions can be understood as comparisons that allow for the passing, or sharing, of some characteristics of the entities compared. Moreover such functions may be sequenced in many different ways. In other words, recursive functions are continually being de- and re-composed in the ongoing composition of today’s surfaces of visualization, with the consequence that the grounds of observation may only retrospectively be established, and even then only temporarily.<sup>x</sup> More generally, as Steyerl says, while many,

aerial views, 3D nose-dives, Google Maps, and surveillance panoramas do not actually portray a stable ground ... they create a supposition that it exists in the first place. Retroactively, this virtual ground creates a perspective of overview and

surveillance for a distanced, superior spectator safely floating up in the air. Just as linear perspective established an imaginary stable observer and horizon, so does the perspective from above establish an imaginary floating observer and an imaginary stable ground. (2011)

Similarly Weizman (2012) argues that vertical sovereignty splits space into stacked horizontal layers, separating airspace from the ground, and the underground from the ground, multiplying sites of conflict and violence. But, so our examples suggest, what is above and what is below or adjacent to us cannot always be easily stabilized.

In both cases many different contexts or grounds were brought into play in attempts to make visible the disappearances. Just as the disappearance of the plane made some layers or orders visible and others invisible, the disappearance of the young women from Chibok silenced some and caused others to speak (see Figure 5). But, in the case of the missing girls, no single ground could be established to cover up or blank out the others entirely. The failure to establish the degree zero of a ground of comparison across contexts meant that the layers could not be made to line up in an orderly fashion; the interference or patterns of diffraction produced across their non-aligned edges created turbulence rather than shared orders of observation.



Figure 5: Afolabi Sotunde, Reuters, in Adam Chandler, Nigeria's Violent Year Since 'Bring Back Our Girls'. *The Atlantic*, 14<sup>th</sup> April 2015

Indeed, we suggest that the contingency of comparison introduced by the gesture of photography across changing situations or contexts is fundamental to the patterning of



1  
2  
3 observation in contemporary surfaces of visualisation.<sup>xi</sup> Chow makes a similar argument in a  
4 discussion of the inter-relationship between the conduct of war on the basis of knowledge  
5 production and the production of knowledge on the basis of war. Specifically, she proposes  
6 that the spatial logic of the grid is giving way to,  
7

8  
9 an archaeological network wherein the once assumed clear continuities (and unities)  
10 among differentiated knowledge items are displaced onto fissures, mutations, and  
11 subterranean genealogies, the totality of which can never be mapped out in  
12 taxonomic certitude and coherence. Knowledge production [is] ... a matter of  
13 tracking the broken lines, shapes and patterns that may have been occluded, gone  
14 underground or taken flight. (2006: 81)  
15

16  
17 She further suggests that in the absence of an *a priori* secure ground, from which to  
18 establish likeness, comparison becomes an act of judging the value of different things  
19 'horizontally, in sheer approximation to one another'. For Chow this act is necessarily  
20 speculative rather than conclusive because it is inseparable from history. She writes,  
21

22  
23 comparison would also be an unfinalizable event because its meanings have to be  
24 repeatedly negotiated – not only on the basis of the constantly increasing quantity  
25 of materials involved but more importantly on the basis of the partialities,  
26 anachronisms, and disappearances that have been inscribed over time on such  
27 materials' seemingly positivistic existences' (2006: 81).  
28  
29

30  
31 A breakdown of the composite nature of recursive functions, as we have attempted above,  
32 provides some analytical resources for an exploration of the contingent politics of the  
33 'unfinalizable' (Chow 2006) composition of events. However, we want to introduce a term  
34 drawn directly from the vocabulary of composition to sum up the ways in which Flusser's  
35 analysis of the gesture of photography is telling for an analysis of 'surfacing' today.  
36 Rendering or rendition is a term with many everyday as well as technical definitions,  
37 including: a performance, a translation, an artistic depiction, a representation of a building  
38 or an interior executed in perspective, as well as to return, to make a payment (in money,  
39 kind or service) as by a tenant to a superior, and to pay in due (a tax or tribute). The origin  
40 for all these uses of the term is the Latin *reddere*: 'to give back'. There are also more  
41 specialised meanings. In computer science, rendering refers to techniques, including chroma  
42 key compositing<sup>xii</sup>. In law, rendition is a surrender or a handing over of persons or property,  
43 particularly from one legal jurisdiction to another. For criminal suspects, extradition is the  
44 most common type of rendition. Extraordinary rendition or irregular rendition is the  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

government-sponsored kidnapping and extra-judicial transfer of a person from one country to another.<sup>xiii</sup>

Working across the meanings of rendition in these two cases, we propose rendering as a key compositional process in the dynamics of contemporary surfaces of visualisation. Steyerl's account of the skills of editing provides a way to think about what this involves: editing, she says, is

... being expanded by techniques of encryption – techniques of selection – and ways to keep material safe and to distribute information. Not only making it public, divulging or disclosing, but really finding new formats and circuits for it. I think this is an art that has not yet been defined as such, but it is, well, aesthetic. It's a form. ... Now it's not only about narration but also about navigation, translation, braving serious personal risk, and evading a whole bunch of military spooks. It's about handling transparency as well as opacity, in a new way, in a new, vastly extended kind of filmmaking that requires vastly extended skills. (Steyerl and Poitras, 2015: 311)

In line with our emphasis on composition, Steyerl proposes that the question of how information is 'stored, secured, circulated, redacted, checked, and so on ... [the] entire art of withholding and disseminating information and carefully determining the circumstances' is a 'formal decision'. Like us, she emphasizes that this formal decision has an unstable temporality:

When I'm working with *After Effects*,<sup>xiv</sup> there is hardly any real-time play back. So much information is being processed, it might take two hours or longer before you see the result. So editing is replaced by rendering. Rendering, rendering, staring at the render bar. It feels like I'm being rendered all the time.

What do you do if you don't really see what you edit while you're doing it? You speculate. It's speculative editing. You try to guess that what it's going to look like if you put key frames here and here and here. Then there are the many algorithms that do this kind of speculation for you. (Steyerl and Poitras, 2015: 312)

In dialogue with Steyerl, the filmmaker Laura Poitras discusses the programme TREASUREMAP used by the US National Security Agency (NSA) to provide analysts with 'a near-real-time map of the Internet and every device connected to it'. She suggests that at the core of the NSA's approach to data collection is 'retrospective querying - how to see narrative after the fact' (Steyerl and Poitras, 2015: 312). In our terms, even though the

1  
2  
3 feedback loops of the photographic gesture may be consistently halted for contemplation,  
4 'real-time developments' constantly render each framing 'merely' historical. As Kurgan says,  
5 the map that emerges from contemporary practices of composition is neither a top-down  
6 view, nor a bottom-up account, but both.  
7

8  
9 Identify an area. Zoom in and examine the specific conditions. Zoom out and then  
10 consider both scales at the same time. The resulting image is no longer hard data. It  
11 is a soft map that is infinitely scalable, absolutely contingent, open to vision and  
12 hence revision. (2013: 204)  
13  
14  
15  
16

17 In practices of rendition, an appearance may rest upon a disappearance: the Chibok girls  
18 appear as the disappeared but their missing neighbours do not. However, even when  
19 something appears, it can change colour, become blurred or smeared as the ground is  
20 suddenly pulled out from under the observer. As Bochner says in relation to certain recent  
21 art, frustration is an understandable response:  
22  
23

24  
25 Frustration because the viewer is looking for a complete 'idea' and is foiled. What is  
26 thought and what is experienced continually replace each other. The concealed is  
27 the source of thought. And thought, which we hoped to use to 'fill in the gaps', is in  
28 itself bottomless or ... incomplete. (2008: 49)  
29  
30  
31

32 In the layered circuits of contemporary surfaces of visualisation that emerge in the gesture  
33 of photography, what we once could see but is no longer visible is rendered co-existent with  
34 what is not yet but can be visualised. Techniques of pre-emption make loops in time in ways  
35 that secure a ground that is not stable and frustration mutates into 'insecurity' in the highly  
36 contingent relations of proximal intimacy emerging across situations.  
37  
38  
39  
40

41  
42 **Conclusion: 'I want to show that there is no resolution, no firm ground. Everything that is**  
43 **given is immediately taken away.'** (Bochner, 2008: 166)  
44

45 In this paper, we have investigated two very different examples of disappearance in terms of  
46 composition. To do this, we drew on Flusser's account of the gesture of photography, an  
47 account that led us to focus on the recursive organisation of a tri-partite set of relations: the  
48 search for a place or position from which to observe a changing situation; the change or  
49 manipulation of the situation, adapting it to the chosen position; and the setting up of a  
50 relation from which to judge the success or failure of this adaptation. By drawing attention  
51 to the changing inter-relationships of changing positions of observation in changing  
52 environments in terms of composition, we showed how surfaces of visualisation emerge  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

from a patterning of relations of observation that we described as rendition. In doing so, we showed how relations of observation are both formal and constitutive of events.<sup>xv</sup>

An interest in the constitutive role of knowledge practices (including observation) is evident in a range of recent approaches. In a discussion of ratings in finance, for example, Esposito argues that the economy has ‘evolved towards an increasing abstraction of its criteria and its operations (expressed by finance), abandoning any reference to the world and its data’ (2013: 3). She then generalizes her analysis to make the claim we introduced earlier, namely that ‘modern society has moved in every field from first-order observation to second-order observation’. In her discussion of the field of genetics, Franklin discusses Rabinow’s prediction in 1992 that we would see the ‘truly new form of autoproduction called biosociality’ involving ‘the formation of new group and individual identities and practices arising out of . . . [the] new truths’ of the human genome project. She suggests that one of the distinctive features of biosociality is that the direction of analogical flow – from nature to culture – is ‘reversed, so it flows backwards’ (2014: 245). The change, she says, is not only ‘one of relationalities (biosocial identities, connections and groups) but also of context and perspective (molecularization)’ (2014: 245); indeed, her proposal is that ‘context itself can change, and be changed’ as the result of what she calls analogic return (2014: 244).

The examples of finance and the biological sciences are of interest because they demonstrate the way in which the travel of analogies or comparisons is constitutive of operations, identities and hierarchies in specific forms of expertise. However, our examples indicate that comparisons may operate across contexts with extreme lability, problematizing the generalizability of understandings of ‘hierarchical’ orders of observation or ‘directions’ of traffic flow. While the examples we have discussed differ in many respects, they both speak to the specificity of contemporary surfaces of visualisation, in which each dis/appeared and re/appeared is composed as a generic singularity – an event that emerges, fractionally, *across* time and space. The recursive operation of ‘across’ locates observers both inside and outside the image that they (we) see. As both a preposition and an adverb, ‘across’ can imply one or all of: moving from side to side or crossing a space; a width or spaces *as* a whole and relative positions in that space; and the process of moving as when a smile spreads across a space. ‘Across’ thus describes relations of observation that do not operate between fixed positions, but constitute the contexts they bring in relation to each other, at least partially, in that relation. Not only are we up close at a distance, as Kurgan

puts it, we are also beside, or next to, from above. And it is to capture this doubling that we suggest that the vocabulary of composition, rather than either that of first and second order observation or the language of analogic return, is required. It is only then that the blue planet whose centre is everywhere but whose circumference is nowhere (Borges 1993) can come into view.

One final observation can be made from the position of the object, as proposed by Žižek in *The Parallax View*. Parallax describes the displacement or difference in the apparent position of an object viewed along two different lines of sight, and it is the basis of depth perception. In computing, the parallax effect is used to produce computer stereo vision. It can be used to establish the distance between seer and seen, and Žižek suggests that the relation established in a parallax view is not unidirectional:

... the subject's gaze is always-already inscribed into the perceived object itself, in the guise of its 'blind spot,' that which is 'in the object more than object itself', the point from which the object itself returns the gaze. Sure the picture is in my eye, but I am also in the picture. (2006: 17)

Or as Chow would put it, the blue planet is the age of the world target.

---

<sup>i</sup> These sites were constructed in the 1950s and 60s to test the resolution of airborne cameras and drones. According to the Center for Land Use Interpretation (<http://www.clui.org>) most of them follow the same general lay-out: a rectangular concrete or asphalt pad constructed flat on the ground, coated in heavy black and white paint. The pattern painted on the targets comprises sets of parallel and perpendicular bars, and, sometimes, a large white square: the smallest group of bars marks the limit for the optical instrument that is being tested. They have been described by Michael Connor as 'a kind of optometrist's chart for the ancestors of drones' (<http://rhizome.org/editorial/2013/may/31/hito-steyerl-how-not-to-be-seen/>).

<sup>ii</sup> Esposito draws on the distinction made by Luhmann (1988), namely, that while first order observation observes things, second order observation observes things, including other observers, in their environment of observation.

<sup>iii</sup> In the introduction to a collection of essays in which he discusses a whole series of gestures, Flusser says that 'gesture is a movement of the body or of a tool connected to the body for which there is no satisfactory causal explanation'. He continues, 'And I define *satisfactory* as that point in discourse after which any further discussion is superfluous' (2014: 2).

<sup>iv</sup> A serial number inside the wing piece found on the beach corresponds with that recorded by the Spanish company that supplied the piece to Boeing, which built the plane in 2002. On its own, this discovery neither confirms nor contradicts crash investigators' belief, based on

radar data and satellite signals, that the plane went down somewhere in an empty stretch of the Indian Ocean, southwest of Australia.

<sup>v</sup> At

[https://en.wikipedia.org/wiki/Search\\_for\\_Malaysia\\_Airlines\\_Flight\\_370#/media/File:Reunion\\_debris\\_compared\\_to\\_MH370\\_flight\\_paths\\_and\\_underwater\\_search\\_area.png](https://en.wikipedia.org/wiki/Search_for_Malaysia_Airlines_Flight_370#/media/File:Reunion_debris_compared_to_MH370_flight_paths_and_underwater_search_area.png) (consulted January 2016)

<sup>vi</sup> The provenance of #BringBackOurGirls is widely contested. In one account, the first use was on April 23 2014 by Ibrahim Abdullahi, a corporate lawyer in Abuja, Nigeria. He, however, credits the phrase to a former vice president of the World Bank for the Africa region, Obiageli Ezekwesili, who said the four words in a TV appearance. NBC News covered the so-called hashtag wars in which Kimberly C. Ellis claimed that Ramaa Devi Mosley, a Los Angeles filmmaker, ‘essentially stole an African woman’s voice, a Nigerian woman’s voice, who started the phrase and started the movement’ (<http://www.nbcnews.com/tech/social-media/hashtag-wars-whos-behind-nigeria-bringbackourgirls-movement-n100771>).

<sup>vii</sup> According to Amnesty International, 2,000 women were kidnapped in Nigeria during the first four months of 2015.

<sup>viii</sup> Similarly, Murphy (2013) has traced the spiralling investments in what she calls the ‘Girl Effect’, that is, the use of the girl as an ascendant ‘transnational figure of rescue and investment’, charged with speculative futures.

<sup>ix</sup> This Israeli campaign aims to ‘Stop the terrorism against Israel & help us #BringBackOurBoys! A search for ‘#bringback’ in Twitter (May 2015) yielded, first, #bringbackourgirls, second, in reference to the Charlie Hebdo shooting in Paris, #bringbackcharlie, third, #bringbackcrystalpepsi and, in fourth place, #bringbackthenhs. Each of the terms is constituted in and constitutive of many and sometimes partially overlapping grounds of observation.

<sup>x</sup> To illustrate the way in which movement and position need not be either subsequent or anterior to observation, but may be already included, consider the history of axonometric projection as described by the art historian Yve-Alain Bois and discussed by Kurgan. An axonometric drawing shows an object in ways that cannot be seen simply by looking at it from a single position. To do so, it typically rotates an object along one or more of its axes such that the surface of the top and two sides are in view simultaneously. This mode of projection has been variously employed by computer scientists, as well as architects and artists, who use graph theory to produce ‘flat’ networks with ‘non’-perspective.

<sup>xi</sup> The use of search terms provides a related illustration of de- and re-composition, of the ground being pulled from under the feet of the observer. In a discussion of metadata, Boellstorff (2015) shows how these terms, which he considers to be a prototypical example of ‘metadata’, can become ‘data’ in some social practices. One example he provides concerns the use of searches to track possible influenza outbreaks. Another example occurred when LGBT activists responded to the heterosexist stance of former Pennsylvanian congressman Rick Santorum by consistently using his name as part of a search string for sexual fluids, temporarily pushing a ‘spreadingsantorum.com’ Website to first place in Google’s results for the term ‘santorum’. In instances like these, Boellstorff argues, phenomena typically classed as meta-communication act as forms of communication. In our vocabulary, the way in which search terms perform comparison across contexts can be understood as an instance of the gesture of photography such that ‘above’ is always in tension with ‘beside’.

<sup>xii</sup> This is a post-production technique for joining two or more images or video streams together based on colour hues. The technique is typically used to remove a background from the subject of a photo or video – particularly in television news, film and the videogame

industry. A colour range in the top layer is made transparent, revealing another image behind.

<sup>xiii</sup> The United States and the United Kingdom are known to have 'renditioned' prisoners to nations that practice torture, called torture by proxy.

<sup>xiv</sup> *Adobe After Effects* is a digital visual effects, motion graphics application developed by Adobe Systems. It is used in the post-production process of filmmaking and television production. Among other things, *After Effects* can be used for keying, tracking, rotoscoping, compositing and animation. It also functions as a basic non-linear editor, audio editor and media transcoder.

<sup>xv</sup> The concept of pattern describes a field of force in which actuality and potentiality are held in tension. As Whitehead says, 'The manner of a pattern is the individual essence of the pattern. But no individual essence is realizable apart from some of its potentialities of relationship, that is, apart from its relational essence' (1978: 115, quoted in Manning, 2013: 165). As patterns, relations of observation are able to act as 'modes of attunement' that 'populate expression at the edge of intelligibility' (Manning 2013: 165); their oscillating effects create alternations in mood in such a way as to provoke 'our bodies into a visceral response rather than a purely visual grasping of form alone' (Jeffries, 2012: 130).

## References

- Bateson, G. (1987) *Steps to an Ecology of Mind*, Chicago: University of Chicago Press.
- BBC News, 'Nigeria's Chibok girls seen with Boko Haram in Gwoza', 14 April 2015, URL (consulted May 2015): <http://www.bbc.co.uk/news/world-africa-32292854>
- BBC News, 'Boko Haram freed Nigerian women tell of captivity horror', 4 May 2015, URL (consulted May 2015): <http://www.bbc.co.uk/news/world-africa-32574777>
- Bochner, M. (2008) *Solar System and Rest Rooms: Writings and Interviews, 1965-2007*, Cambridge, Mass.: The MIT Press.
- Boellstorff, T. (2015) 'Making Big Data, in Theory', pp. 87-108 in T. Boellstorff and B. Maurer (eds.) *Data, Now Bigger and Better!*, Chicago: University of Chicago Press.
- Bonnici, T. 'Kidnapped Boko Haram girls make long walk to freedom.' *The Times, Africa*, 12 October 2014, cited in Wikipedia.
- Borges, J. L. (1993) 'Pascal's Sphere', URL (consulted May 2015) <http://www.filosofiaesoterica.com/ler.php?id=1355#.Vo1fhPmLTcs>.
- Chow, R. (2006) *The Age of the World Target: Self-Referentiality in War, Theory, and Comparative Work*. Durham, North Carolina: Duke University Press.
- Crary, J. (1990) *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. Cambridge, Mass.: The MIT Press.



Dearden, L. (2015) 'Chibok kidnappings: Schoolgirls may never be brought home, Nigeria's President-elect admits', *The Independent*, 14 April 2015.

Esposito, E. (2013) 'Economic circularities and second-order observation: the reality of ratings', *Sociologica*, no. 2, URL (consulted 2015):  
<http://www.sociologica.mulino.it/doi/10.2383/74851>

Flusser, V. (2014) *Gestures*, Minneapolis: Minnesota University Press.

Foerster, H. von (1995) Anthology of principles, propositions, theorems, roadsigns, definitions, postulates, aphorisms etc., URL (consulted September 2015):  
<http://www.cybsoc.org/heinz.htm>.

Franklin, S. (2014) 'Analogic return: the reproductive life of conceptuality', *Theory, Culture and Society*, vol. 31 no. 2-3: 243-261.

Halpern, O. (2014) *Beautiful Data*. Durham and London: Duke University Press.

[REDACTED]

[REDACTED]

Khoja-Moolji, S. (2015) 'Becoming an "Intimate Publics": Exploring the Affective Intensities of Hashtag Feminism', *Feminist Media Studies*, 15, 2: 347-50.

Kurgan, L. (2013) *Close Up at a Distance: Mapping, Technology and Politics*, New York: Zone Books.

Luhmann, N. (1998) *Observations on Modernity*. Stanford, California: Stanford University Press.

Manning, E. (2013) *Relationscapes: Movement, Art, Philosophy*. Cambridge, Mass.: The MIT Press.

Morse, F. 'The Bring Back Our Girls Campaign is working: Boko Haram should be scared of a hashtag'. *The Independent*, 13 May 2014.

Moskatova, O. (2013) 'Re-inscriptions: microscopy of time and motion', pp. 96-116 in C. Taban (ed.) *Meta- and Inter-Images in Contemporary Visual Art and Culture*, Leuven: Leuven University Press.

Murphy, M. (2013) 'The Girl: Mergers of Feminism and Finance in Neoliberal Times', *The Scholar and Feminist Online*, 11.2., URL (consulted 2014):  
<http://sfonline.barnard.edu/gender-justice-and-neoliberal-transformations/the-girl-mergers-of-feminism-and-finance-in-neoliberal-times/>

Nayar, P. K. 'The Violence of Disappearance: Reading the Boko Haram Kidnapping', URL (consulted September 2015):  
[http://www.esocialsciences.org/Articles/ShowPDF/A20155495757\\_41.pdf](http://www.esocialsciences.org/Articles/ShowPDF/A20155495757_41.pdf)



- 
- Smith, C. (2015) The technology of hope : twitter and the #BringBackOurGirls campaign. MA Dissertation, Royal Roads University, Canada, URL (consulted September 2015): <https://dspace.royalroads.ca/docs/handle/10170/842>
- Smith, D., Sherwood, H., and Soal, J. (2014) 'Nigerian schoolgirls' home town in despair after president cancels visit.' *The Guardian*, 16 May 2014.
- Stark, D. (2009) *The Sense of Dissonance*, Princeton NJ: Princeton University Press.
- State Department Daily Press Briefing 14 April 2015, URL (consulted September 2015): <http://iipdigital.usembassy.gov/st/english/texttrans/2015/04/20150414314665.html?CP.rss=true#axzz3bi7EP2bq>
- Steyerl, H. (2011) 'In free fall: a thought experiment on vertical perspective', e-flux journal #24, URL (consulted May 2015): <http://www.e-flux.com/journal/in-free-fall-a-thought-experiment-on-vertical-perspective/>
- Steyerl, H. and Poitras, L. (2105) 'Techniques of the observer', *Artforum*, May, pp. 306-317.
- Totaro, P. and Ninno, D. (2014) 'The concept of algorithm as an interpretative key of modern rationality', *Theory, Culture and Society*, 31 (4): 29-49.
- VICE Acid, Passion and Dried Blood: Photos from Murder Scenes in 1880s Paris, March 31, 2015, photos by Glenn Cloarec, URL (consulted May 2015): [http://www.vice.com/en\\_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876](http://www.vice.com/en_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876)
- Virilio, P. (1989) *War and Cinema: The Logistics of Perception*. London: Verso.
- Weizman, E. (2012) *Hollow Land: Israel's Architecture of Occupation*. London: Verso.
- Wikipedia, Chibok Schoolgirls Kidnapping, URL (consulted May 2015): [https://en.wikipedia.org/wiki/Chibok\\_schoolgirls\\_kidnapping](https://en.wikipedia.org/wiki/Chibok_schoolgirls_kidnapping)
- XX and XX (in press) 'Biosensing: tracking persons', in D. Nafus (ed.) *Biosensors in Everyday Life*. Cambridge, Mass.: The MIT Press.
- Žižek, S. (2006) *The Parallax View*. Cambridge, Mass.: The MIT Press.
- 'short biographical note (3-7 lines) should be included at the end of the article. current postal address and e-mail' – to be added.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

Thank you for the feedback on our article, which we are now resubmitting. We are not sending a track change version of the paper since the changes have been quite extensive. Instead, we indicate here how we have responded to the points raised by the editorial board and reviewers.

Editorial board

We would ask you to produce a revised version that takes into account and the following suggestions:

1. The introduction could be more tightly focused and state more clearly what is at stake in the paper and draw in the reader more directly.

*We have made the introduction more direct, and indicated more clearly what is at stake in the analysis of our two cases of disappearance in terms of relations of observation.*

2. Every attempt should be made to make the paper as accessible as possible for the non-specialist reader. Attention also needs to be given to a clearer line of argument linking the various sections together. You might consider cutting some of the asides and footnotes to keep focused on the core argument.

*We have made the argument more directly, reduced the number of asides, and made clearer links across the sections of the paper, as well as expanding on our key terms. We have also reduced the number and length of footnotes.*

3. There are some doubts about the relevance of the examples you have chosen.

*We have acknowledged that the two examples of disappearance are very different in some respects, while at the same time showing how they are relevant to understanding the composition of surfaces of visualization.*

4. The conclusion could be better integrated into the paper.

*We have substantially revised the conclusion, linking it to a broad set of debates about the significance of observation and knowledge-making practices.*

5. The title could be improved to gain a wider readership. Reversing the title and subtitle could work better.

*We have proposed a new title.*

6. I have enclosed a number of referees' reports that makes a series of other useful points.

*These reports make a number of suggestions. We have responded to those that we thought were in line with the revisions proposed by the editorial board. Thus, we have:*

- *made clearer our argument about the significance of observation, and demonstrated that relations of observation are not trivial or incidental to the making of events, but constitutive;*
- *developed the distinctiveness of our argument by emphasizing the vocabulary of composition, in part in contradistinction to notions of feedback, first and second order observation, recursion and directionality of travel. This allows us to foreground the shifting grounds of observation, which we describe as a surface of visualization;*
- *integrated more closely our use of Flusser's gesture of photography into the analysis of the two cases;*
- *made the paper more clearly a stand-alone article, whilst at the same preserving – and emphasizing – the importance – of our position as observers in the making of the events we describe.*

We also wanted to request further guideline on the TCS instructions as follows:-

As far as we are aware, the images are in the public domain but we would be grateful for any further advice before uploading these at the Author's Centre, and we also wanted to check whether they had to be in black and white.

We have not yet added a biography to the end of the paper, to preserve anonymity.

We look forward to your response,

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

New Technologies of the Observer: #BringBack, Visualization and Disappearance.

For Peer Review

Keywords: surfaces, vision, rendition, double blind, double bind

Abstract:

This paper explores two examples of non-visibility as a way of describing the specificity of contemporary surfaces of visualization. The two cases are the disappearance of Malaysia Airlines Flight 370, the scheduled passenger flight from Kuala Lumpur to Beijing, which lost contact with air traffic control on 8 March 2014 at 01:20 MYT, and the 276 Nigerian girls who went 'missing' at about the same time. The analysis is developed through an exploration of these examples in terms of the patterning of vision produced in recursive relations, or relations of feedback with the environment. We argue that changes in the organization of this feedback, which we describe as 'rendition', equip contemporary observers with both the capacity to see 'close up at a distance' and the capacity to be situated adjacent, next to or 'beside from above'.

*When [Wittgenstein] says, "if the color changes you are no longer looking at the one I meant," the ground is suddenly pulled out from under you. How did the color change? Who, or what, was the agent? (Bochner, 2008: 202)*

**Introduction**

In her book *Close Up at a Distance*, Laura Kurgan discusses a well-known series of images of the planet earth that began with *The Blue Marble*, a photographic view of the earth as seen by the Apollo 17 crew travelling towards the moon in 1972, and ended with the 2012 digital versions of this image. She describes these later versions as being,

... assembled from data collected by the Visible/Infrared Imager Radiometer Suite (VIIRS) on the Suomi NPP satellite in six orbits over eight hours. These versions are not simply photographs taken by a person traveling in space with a camera. They are composites of massive quantities of remotely sensed data collected by satellite-borne sensors. ... This is not the integrating vision of a particular person standing in a particular place or even floating in space. It's an image of something no human could see with his or her own eye ... because it's a full 360-degree composite, made of data collected and assembled over time, wrapped around a wireframe sphere to produce a view of the Earth at a resolution of at least half a kilometer per pixel – and any continent can be chosen to be at the center of the image. [Moreover] ... it can always be updated with new data. (2013: 11-12)

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

As a patchwork or composite of satellite data, this image has no (visible) edges: it is boundless and, as such, might lead us to imagine that contemporary visualization has no limits. Yet there are very many ways in which in-visibility or non-visibility can be achieved today, as Hito Steyerl's deadpan film *How Not to be Seen: A Fucking Didactic Educational.MOV File* (2013) demonstrates.

Partly set in a now disused photo calibration test site in a Californian desert <sup>i</sup> *How Not to be Seen* presents itself as an instructional video, educating viewers about how to remain invisible in an age of surveillance. Various possible strategies are identified, including camouflaging oneself (to demonstrate, Steyerl smears green paint on her face), cloaking and hiding in plain sight. Additionally, so a voice-over announces, you can be rendered invisible if you are poor, undocumented, living in a gated community or in a military zone, a woman over 50, if you own an 'anti-paparazzi handbag', are disappeared by the authorities, eradicated or annihilated, or if you are 'a dead pixel'. To demonstrate this last possibility, several people appear on the screen, wearing black boxes on their heads, only to be faded out. Digitally rendered ghosts dance in the desert landscape as The Three Degrees' *When Will I See You Again?* plays on the soundtrack.

In this article, we analyse two very different examples of disappearance in terms of relations of observation: the disappearance of Malaysia Airlines Flight 370, and the 276 Nigerian girls who went 'missing' at about the same time in 2014. By focusing on relations of observation, we hope to explore how these events have been taking place without downplaying their gravity. We use the term surface to draw attention to the ways in which relations of observation are constantly shifting, implying and sometimes precluding points of view, and providing ever-changing conditions for visibility and invisibility across situations. However this attention to processes of 'surfacing' is not to deny or minimize the importance of the complex materialities of contemporary observation. Following Crary, we believe that observation is not the purposeful, perceptual practice of an individual; rather, our presumption is that the observer is 'the effect of an irreducibly heterogeneous system of discursive, technological and institutional relations' (1990: 6).

Observation commonly implies vision and cognate terms such as visibility or visualization, all of which provide holding terms for many functions: 'a physical sense, a set of practices and discourses, and a metaphor that translates between different mediums and different

communications systems' (Halpern 2014: 21), such as 'knowledge'. As Halpern points out, 'Vision is ... a discourse that multiplies and divides from within' (Halpern 2014: 21). In this regard, the history of the term 'visualization' is instructive: a relatively recent term, it only appeared in the Oxford English Dictionary in 1883, and was used initially to depict the formation of mental images of things 'not actually present in sight' (Halpern 2014: 21). In the decades that followed, however, it has come to mean any 'action or process of making visible':

Visualization slowly mutated from the description of human psychological processes to the larger terrain of rendering practices by machines, scientific instrumentation, and numeric measures. Most important, visualization came to define bringing that which is not already present into sight. Visualizations, according to current definition, make new relationships appear and produce new objects and spaces for action and speculation. (Halpern 2014: 21)

We live now in an environment of large-scale automated data collection and surveillance. Not only have the technical mechanisms of observing or collecting data multiplied in the recent past but so too have the opportunities for feeding back or sharing these observations. As we have argued elsewhere (Day and Lury 2016), these opportunities for feedback have produced new opportunities for a variety of forms of tracking, all of which involve the repeated folding of data, or looping of observation, into analysis at defined intervals in time. This ongoing analysis turns traces into tracks as data are related, linked, or connected to each other, so allowing feedback to 'feed forward'. As a consequence, at the same time that 'knowledge is decentralized and distributed across persons, practices, documents and information infrastructure', the question becomes 'not simply 'who knows whom?' or 'who knows what?' but 'who knows who knows what?'" (Contractor, quoted in Stark 2009: 174). Indeed, some commentators have gone as far as to suggest that 'modern society has moved - in every field - from first-order observation to second-order observation' (Esposito 2013: 4)<sup>ii</sup>. We put forward instead an analysis focusing on *composition* (Day, Lury and Wakeford 2014) as a way to explore the many layers, moving ratios and multiple dimensions of the surfacing of visualization. We ask about 'the nature of what becomes visible' (Jiménez 2014: 28) without assuming that the visible and invisible are opposites.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

We frame our discussion of in- or non-visibility in terms of Flusser’s gesture of photography in the following section, which shows how observers are inside as well as outside a situation. We apply this approach to the two examples in order to demonstrate some of the variety and complexity to relations among observers and observations, drawing particular attention to the lability of these shifting relations today. Given this instability, we ask whether Flusser’s insights into the gesture of photography might be developed further to show how relations of observation work ‘across’ situations to produce events. His three aspects to the gesture of photography: finding a position from which to observe; adapting the situation to that position and evaluating the success of this relative positioning, become more complex with multiple, mobile observers using proliferating technologies of observation. In many circumstances, relations are stabilized through what have been described as hierarchies (first and second order) of, or directions to, observation. But, the two examples we introduce suggest continual processes of editing or speculating, which we describe as rendering. Rendering invites questions about the grounds for observation which may no longer exist *a priori*, in which case vision becomes an *a posteriori* approximation or a revision. In such circumstances, we argue, observers and observations can only be related partially, and invisibility rather than visibility is the outcome. Our emphasis on composition is helpful, we hope, in drawing attention to the shifting grounds on which observations might be related, ordered or positioned next to, above or below.

**Composing a surface of visualization**

To illustrate our compositional approach we begin then with Flusser’s nested analysis of ‘the gesture of photography’<sup>iii</sup> (2014), which indicates how relations of observation create an expanding surface within which events take shape. Flusser starts with a quotidian situation: that of a man positioning a camera so as to take a photograph of another man sitting in a chair, smoking a pipe. He points out that even in such an apparently straightforward situation it is hard for the photographer to know where to position himself so as to get the right perspective, and give the object being photographed – in this case, the man with the pipe – the depth of vision that it requires to be seen. Describing this struggle, he observes,

The center of this situation is the man with the apparatus. He is moving. Still, it’s awkward to say of a center that it is moving in relation to its own periphery. When a center moves, it does so with respect to the observer, and the whole situation then moves as well. We must therefore concede that what we are seeing when we watch



the man with the apparatus is a movement of the whole situation, including the man sitting on his chair. (2014: 74-5)

In other words, while the photographer might believe that he is positioning the camera so as to find the best standpoint from which to photograph a fixed situation, he is, if he is performing the gesture of photography rather than taking a picture, looking for the position that best corresponds to a situation that is moving.

Flusser then adds a further observation. He notes that we too are part of the moving situation. More specifically, he recursively folds himself - and us - into the gesture of photography:

... the man with his apparatus is the center of the situation only for us, watching him, not for himself. He believes himself to be outside the situation, for he is watching it. For him the man on the chair, at the center of his attention, is the center of the situation. (2014: 75)

In short, Flusser suggests that what is required of the photographer by the gesture of photography – moving to find a position from which to take a photograph of a situation which is changing as he moves - is also true of us as observers of the gesture: ‘we, too, are located in the space, watching the man with the apparatus’ (2014: 75). While we too might believe ourselves to be outside the situation, we are (also) inside. Although ‘our’ location could ‘mislead us’ into supposing that there are two different situations, ‘one in which the man with the apparatus, whom we transcend, is at the center and another in which the man on his chair is at the center and in which we are involved’, this is not the case. Instead, so Flusser asserts, ‘The two situations are different yet bound up with one another’ (2014: 75). A surface of visualization, therefore, includes components or relations that may be moving in different directions at different rates and it will ‘expand’ to include recursively future observers.

Flusser’s analysis of the gesture of photography is captured in the photograph we reproduce here (Figure 1). The image shows the positioning of the camera deemed necessary by the police to record the scene of a crime in the late nineteenth and early twentieth century: ‘[the image’s] center will pass exactly between the eyes of the cadaver – at the root of the nose’ ([http://www.vice.com/en\\_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876](http://www.vice.com/en_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876)). This position - directly above the object of concern – has since been institutionalised in a variety of forms of surveillance, including the aerial viewpoint of the

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

bomber or the drone (Virilio 1989). This image might thus appear to demonstrate better than many others that photography is produced from a position that is above or outside the situations that it observes. Yet the photograph is (also) an observation of an observation, and makes it clear that the position of the observer above or outside the situation is also, recursively, part of the situation. The assumption of a fixed position in a stratified hierarchy of observation is shown to be unstable since, from outside the image, we are already drawn into the context of observation.

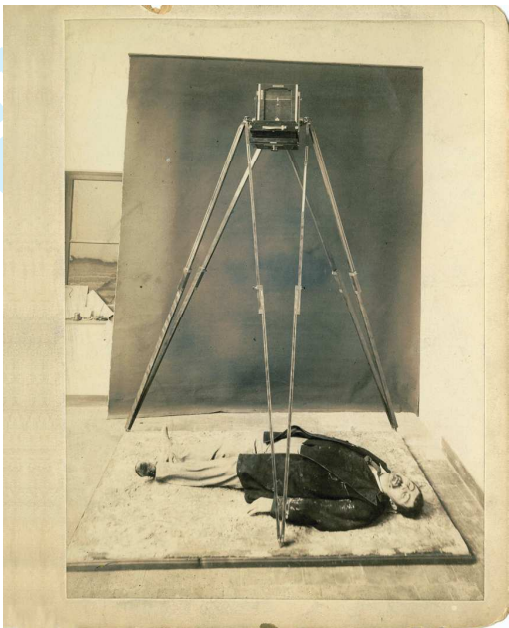


Figure 1: Studio Demonstration of Bertillon's 'bec à gaz' camera technique, La Musée de la Préfecture de Police, Paris. (Image posted at VICE website)

Observation in this image is orthogonal to the vertical 'god's eye' view, and so it makes visible how the gesture of photography creates a surface in motion across situations.

Drawing on this analysis, we suggest that the gesture described by Flusser is not restricted to photography but is enabled by a whole array of technical supports. We note, for example, the way in which the constantly changing organization of the relations established across the three sites of television - the place of recording, the place of reception, and the place of transmission – continually remake situations as (geo-political) events (Weber 1996). And we suggest that the event-making capacities of observation are rapidly changing across relations that now routinely, recursively and massively take place between the military,

governments, corporations and everyday users of location-based devices and applications. In short, we propose that the recursive binding together of situations described by Flusser in terms of the gesture of photography is fundamental to the making of contemporary surfaces of visualisation. We turn now to two examples to illustrate and develop this claim.

### The case of the disappearing plane

It was widely reported that Malaysia Airlines Flight 370, a scheduled passenger flight from Kuala Lumpur to Beijing, lost contact with air traffic control on 8 March 2014 at 01:20 Malaysian time (MYT), less than an hour after takeoff. The aircraft was carrying 12 Malaysian crew and 227 passengers from 14 nations. No explanation of this disappearance has yet been officially confirmed although debris from the plane have been found, including a wing piece on a beach of the Pacific Ocean island, Réunion.<sup>iv</sup> In relation to this, our first case, we ask: how can a plane, tracked by technologies of global surveillance, 'disappear'? In a discussion elsewhere (2016), we proposed that the 'disappearance' is a consequence of a combination of 'double blind' and double bind and we explore this proposition further in order to investigate how relations of observation are composed in an expanding surface of visualisation.

Heinz von Foerster (1995) used the term *double blind* to draw attention to the instability and contingency of vision. In a play on Bateson's (1956) double bind theory, he argued that we do not see 'everything', including our own 'blind spots'. A blind spot, or scotoma, is an obscuration of the visual field. A particular blind spot known as the physiological blind spot, or *punctum caecum*, is the place in the visual field that corresponds to the lack of light-detecting photoreceptor cells on the optic disc of the retina where the optic nerve passes. Since there are no cells to detect light on the optic disc at this point, the brain interpolates the blind spot based on surrounding detail and information from the other eye, with the result that the blind spot is not normally perceived. Von Foerster draws on this understanding in his presentation of the *double blind*; indeed, he sums up the long-established finding that each of our two eyes has a blind spot with the aphorism: 'We do not see what we do not see' (or as he put it elsewhere, 'We do not see that we do not see'). A consequence of this double negative, we suggested, is a (false) positive, that is, a belief that we can see everywhere, as illustrated for example by contemporary versions of *The Blue Marble* (introduced above). As we pointed out, however, the plane's disappearance demonstrated that 'we' cannot see always and everywhere (Figure 2), even with the aid of the huge technical complex of GPS, civilian and military satellites, drone cameras,

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

GoogleMap and so on. The disappearance revealed that there are edges (which might appear as gaps, corridors, or out-of-focus patches) in today’s apparently boundless surface of visualization, even if we do not always know where they are or how they operate, where or when we might fall into a crevice or over an edge.

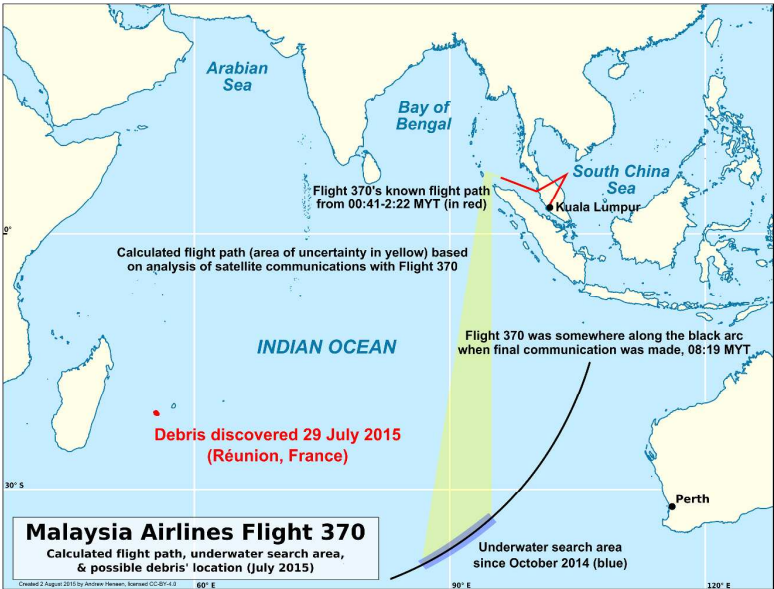


Figure 2: Map plotting the disappearance of Malaysia Airlines Flight 370 after debris was found in Reunion, compared with MH370 flight paths and underwater search area. By Andrew Heneen, created with public domain data from NaturalEarth.<sup>v</sup>

It is fundamental to our argument that this disappearance was visible even as the plane itself disappeared. Its visibility, we suggested (2016), was a consequence of the operation of double blind and *double bind*, a phenomenon described by the anthropologist, Gregory Bateson ([1956]). Bateson suggests that double bind – which he describes as ‘an experienced breach in the weave of contextual structure’ - is a characteristic of all adaptive change. Such change, he says, depends upon feedback loops, ‘be it those provided by natural selection or those of individual reinforcement’. He continues, ‘In all cases, then, there must be a process of trial and error and a mechanism of comparison.’ Significantly he further notes, ‘trial and error must always involve error, and error is always biologically and/or psychically expensive. It follows therefore that adaptive change must always be hierarchic’. The introduction of hierarchy is necessary (and beneficial) for Bateson since, ‘There is needed not only that first-order change which suits the immediate environmental (or physiological) demand but also second-order changes which will reduce the amount of trial and error

needed to achieve the first-order change'. Here Bateson argues that the introduction of hierarchy is a consequence of a recursive process that is necessary for learning and for the adaptation of an entity to its environment: as he says, 'And so on' (1987: 201).

In observing some of the responses that made the disappearance of the plane visible, we suggested that the *double bind* in operation for some, especially state observers, involved the co-existence of the injunction to 'see everything' (or at least the injunction, 'do not see what you do not see') and the contradictory injunction to 'see nothing' (which is to say, 'do not see what you see'). Relatives of the missing passengers and crew personify the imperative to see everything; they focus the minds of state actors who do not want to admit the failure (of the fantasy) of total planetary observation that is the double blind hypothesis. However, in order for this double blind hypothesis to be preserved, observers who are differently situated in relation to the context(s) of observation needed to reveal to each other what they had (not) seen. But such comparison, as Bateson notes, has significant political 'costs' for such observers, especially for those observers acting on behalf of states who might reveal their own positions as they compare their observations with those of others. This dilemma intensifies a situation in which such observers simultaneously feel compelled to observe the injunction to not see what they do not see *and* to not see what they do see. These twin injunctions inform a slow dance of observe and (don't) tell, the outcome of which, we suggested, was the creation of unstable hierarchies of first and second orders of observation. Yet the costs and opportunities of comparison can lead to other outcomes, as we suggest with reference to our second case.

#### **The case of the Chibok abduction**

On April 14, 2014, 276 girls were kidnapped from a school in the north-east of Nigeria. This violence was attributed to Boko Haram, an organisation antagonistic to both the Nigerian regime, which is associated with the south of the country, and western powers: their name is commonly translated as 'western education is sinful'. In this example too, we suggest, a disappearance is rendered visible, but the situations that are bound together in this case do not establish the grounds for any, even unstable, hierarchies of observation.

We indicate the myriad range of observations in this case by recording some local, national and international reports. Citizens took to the streets of Abuja in protest and demanded the return of the girls, fifty-nine of whom had managed to escape shortly after their abduction.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

There was a rally in Cardiff, UK and hundreds of other cities across the world; church congregations joined in prayer, and international church leaders in negotiation. One by one, the girls were individually named. Speculation about their fate, about Boko Haram and the Nigerian state was rife.

The political impetus to find the girls was amplified globally in a hashtag campaign on Twitter, #BringBackOurGirls, which attracted commentary in turn. The campaign started in Nigeria<sup>vi</sup> and attracted the support of Michelle Obama (Figure 3), Malālah Yūsafzay, the Nobel Prize laureate and activist from Pakistan, and many others, who were bound together in outrage at the abduction of the young women. The First Lady’s address of May 10<sup>th</sup> 2014 was given on the US holiday for honouring mothers.



Figure 3: Michelle Obama, #BringBackOurGirls, posted to her official Twitter account (Wikipedia, Chibok Schoolgirls Kidnapping, accessed May 2015)

One of the most emotive posters attached to #BringBackOurGirls was tweeted by rapper Chris Brown, as well as the US embassy in Madrid, Kim Kardashian and global girls’ rights activist Becky Makoni among many others (Figure 4). The picture is of a girl from Guinea Bissau, a country more than 1,000 miles away from Nigeria, taken by photographer Ami Vitale in 2000, some considerable time before the abduction. The girl in question, Jenabu Balde, was not abducted and the teardrop running down her cheek was photoshopped in (Felicity Morse, 13 May 2014). By 7<sup>th</sup> May 2014, more than one million people had signed up to the Twitter campaign and, according to Wikipedia’s hashtag activism entry, the photo has received over two million retweets.





Figure 4: #BringBackOurGirls image, shared by Chris Brown on Twitter, 1 May 2014

It only became clear slowly to many international observers that the kidnapping was far from an isolated event. For example, just over a month before the girls were abducted in Chibok, 59 boys were shot or burned to death by Boko Haram at a secondary school in Yobe, Nigeria. To many observers from the 'outside' at least, it seemed unclear whether the Nigerian state would hold. On CBS News, the US Defence Secretary, Chuck Hagel asserted that it was an open question whether Nigerian forces were capable of rescuing the girls. The audience were told that the Muslim north would never vote for a Southern Christian president and so electoral mathematics could not justify a 'disproportionate' response. As the US deployed surveillance aircraft over the area with and without crew, White House spokesperson, Jay Carney, said there would be no active deployment of US forces in Nigeria because, 'we' don't know enough yet... what to recommend to Nigerians, where they need to go, what they need to do, to get those girls back' (Smith, Sherwood and Soal, 16 May 2014).

Kidnappings, executions and destruction continued in the north of Nigeria throughout 2014. A ceasefire announced in October did not last, and it was not until February 2015 that concerted military interventions by the Nigerian army in collaboration with neighbouring countries led to the reclamation of much of the territory held by Boko Haram, leaving them only the Sambisa forest. Many people were also rescued from this forest, including a group

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

of nearly 300 women and children (BBC News, 4 May 2015). Some of those freed came from villages close to Chibok, but they did not include the missing young women.<sup>vii</sup>

On the anniversary of the abduction, April 14 2015, the Nigerian President Elect acknowledged, 'we do not know if the Chibok girls can be rescued. Their whereabouts remain unknown. As much as I wish to, I cannot promise that we can find them....' (Dearden, 14 April 2015). Around the world, vigils and marches were staged once more. In New York, the Empire State Building was lit up in red and purple in honour of the missing girls. Supporters from New Zealand to the United States again posted online, using the hashtags #365DaysOn, #ChibokGirls and #NeverToBeForgotten. Since then, sporadic reports, associated with videos and messages from Boko Haram, variously assert that the disappeared young women converted to Islam, now hate their parents, have been married off, sent into sexual slavery, or trained as suicide bombers (Nayar 2015).

To develop our analysis of the difficulties of observation, we consider the Bringback hashtag campaign a little further. While commentators agree that the observations on Twitter were made largely from the global north and west, and were often articulated from the position of mothers, analyses of the campaign highlight the complexity of different situations of observation and the difficulty of establishing relations across these situations. Nayar (2015), for example, suggests that the victims of abduction 'were kidnapped for being girls.' She observes that the BringBack rhetoric in the USA 'shrewdly notes that educated girls are a rarity in Nigeria (5% of the total population)', and argues that the posts imply 'that by kidnapping them Boko Haram has stalled modernisation itself'. She argues that the role of maternal and filial testimonies was instrumental in harnessing the personal to the political, and the affective history (primarily of loss and anguish) of the family to the social history of the nation. Khoja-Moolji (2015) further claims that hashtag feminism implies a certainty about the lives of 'girls' in the global south and its own role (from the global north) in alleviating their suffering, rearticulating longstanding colonial relations with campaigns of redress.<sup>viii</sup> These and other analyses demonstrate the difficulty of establishing a ground from which to make observations or to which the young women could be returned, let alone a ground in relation to which a hierarchy between first and second order observations could be established.



Indeed we suggest that a radical uncertainty is always introduced into the surface of visualization by the gesture of photography. Would a hashtag #BringBackOurBoys have the ability to refer to what commentators see as homeland racist killings in the US, or campaigns for the return of US soldiers from one or more of the US military interventions taking place in other parts of the world, or the Israeli social media campaign that was launched in June 2014 by students of the University of Haifa? This Israeli campaign called upon the international community for action after three teenage Israeli boys were abducted by pro-Palestinian militants and was directly inspired by the #BringBackOurGirls campaign.<sup>ix</sup>

### Rendition

Having introduced our two cases, we now bring them together in a practice of comparison so as to 'learn' how relations of observation, including our own, operate across changing contexts. First, we return to Flusser's analysis of the gesture of photography to highlight the way in which three aspects of this gesture are recursively linked. Flusser says,

A first aspect is the search for a place, a position from which to observe the situation. A second aspect is the manipulating of the situation, adapting it to the chosen position. The third aspect concerns critical distance that makes it possible to see the success or failure of this adaptation. (2014: 77)

It is the links across these three aspects, we suggest, that produce a surface in which the recursive doubling of the position of observer is neither mere duplication nor hierarchical subsumption of one position by the other, but something more complicated. In other words, the gesture of photography, as it is implemented in multiplying feedback loops, produces a surface that is always being made, un-made and re-made and, as such, is never coincident with itself. Put simply, we understand the doubling of observation in Flusser's account of the photographic gesture to describe observation as (re-)entry into a surface of visualization that is changing, not least because it is itself the object of observation.

Flusser proposes that, 'This view of ourselves in a situation (this 'reflexive' or 'critical vision) is characteristic of our being-in-the-world, and we see it, we 'know' about it' (2014: 75). He does not consider that this reflexive position is an objective one. However, while he characterizes the photographic gesture, and more widely any gesture, as a release from a particular role he also suggests that this release is just as available to the man with the apparatus inside the photograph as to the observer outside the image. Both, he suggests, are bound to a 'place' from which we can assert that 'we are experiencing the same situation twice'. He says that this 'place is 'the basis for a consensus, for intersubjective

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

recognition. If we encounter the man with the apparatus on this basis, we don't see the situation 'better': rather, we see it intersubjectively, and we see ourselves intersubjectively' (2014: 75-6). Our examples suggest, to the contrary, that 'we' are not experiencing the same situation twice, and are often unable, therefore, to see ourselves intersubjectively.

Our first case suggests that double bind, double blind and first and second order observation may emerge as the outcomes of this process of recursion. As they happen, ongoing processes of observation may organise and – partially and differentially - reveal the surface in which they take place. Insofar as they involve a halting, pausing or momentary suspension for evaluation in the process of recursion, they may permit (collective) contemplation of what is visible and what is invisible and even support speculation about how visibility and in- or non-visibility are inter-related and from which positions. But our second case demonstrates that these are not the only possible outcomes.

To develop an analysis that is adequate to both examples, we turn to consideration of doubling as recursion – 'And so on' as Bateson puts it. In this respect, it is worth noting that recursion may have a variety of effects, in part because it always comprises several operations, and not simply doubling. Weizman (2012), for example, argues that vertical sovereignty emerges from the recursive splitting of space into stacked horizontal layers, separating airspace from the ground, and the ground from the underground, multiplying sites of conflict and violence. As our discussion of the gesture of photography suggests, surfaces of visualization are themselves continually de- and re-composed through the making of partial connections (Strathern 2004). A (dis-)proportional scaling of events is constantly emerging as relations of comparison are established across sites of observation, sometimes only to disappear. Indeed, our examples suggest that what is above and what is below or adjacent to us cannot always be stabilized. As Steyerl notes, while many,

aerial views, 3D nose-dives, Google Maps, and surveillance panoramas do not actually portray a stable ground ... they create a supposition that it exists in the first place. Retroactively, this virtual ground creates a perspective of overview and surveillance for a distanced, superior spectator safely floating up in the air. Just as linear perspective established an imaginary stable observer and horizon, so does the perspective from above establish an imaginary floating observer and an imaginary stable ground. (2011)

In other words, the grounds of observation may only retrospectively be established and even then only temporarily.<sup>x</sup>

In both these cases, many different contexts or grounds were brought into play in attempts to make visible the disappearances. Just as the disappearance of the plane made some layers or orders visible and others invisible, the disappearance of the young women from Chibok silenced some and caused others to speak (see Figure 5). But, in the case of the missing girls, no single ground could be established to cover up or blank out the others entirely. This failure to establish the degree zero of a ground of comparison across contexts meant that the layers could not be lined up in an orderly fashion; the interference or patterns of diffraction produced across their non-aligned edges created turbulence rather than shared orders of observation.



Figure 5: Afolabi Sotunde, Reuters, in Adam Chandler, Nigeria's Violent Year Since 'Bring Back Our Girls'. *The Atlantic*, 14<sup>th</sup> April 2015

Indeed, we suggest that the contingency of comparison introduced by the gesture of photography across changing situations or contexts is fundamental to the patterning of observation in contemporary surfaces of visualisation.<sup>xi</sup> Chow makes a similar argument in her discussion of the inter-relationship between the conduct of war on the basis of knowledge production and the production of knowledge on the basis of war. Specifically, she proposes that the spatial logic of the grid is giving way to,

an archaeological network wherein the once assumed clear continuities (and unities) among differentiated knowledge items are displaced onto fissures, mutations, and

subterranean genealogies, the totality of which can never be mapped out in taxonomic certitude and coherence. Knowledge production [is] ... a matter of tracking the broken lines, shapes and patterns that may have been occluded, gone underground or taken flight. (2006: 81)

She further suggests that, in the absence of an *a priori* secure ground from which to observe, comparison becomes an act of judging the value of different things 'horizontally, in sheer approximation to one another'. For Chow this act is necessarily speculative rather than conclusive because it is inseparable from history. She writes,

... comparison would also be an unfinalizable event because its meanings have to be repeatedly negotiated – not only on the basis of the constantly increasing quantity of materials involved but more importantly on the basis of the partialities, anachronisms, and disappearances that have been inscribed over time on such materials' seemingly positivistic existences.' (2006: 81)

A breakdown of the composite nature of recursive functions, as we have attempted above, provides some analytical resources for an exploration of the contingent politics of the 'unfinalizable' (Chow 2006) composition of events. However, we want to introduce a term drawn directly from the vocabulary of composition to sum up the ways in which Flusser's analysis of the gesture of photography is telling for an analysis of 'surfacing' today. Rendering or rendition is a term with many everyday as well as technical definitions, including: a performance, a translation, an artistic depiction, a representation of a building or an interior executed in perspective, as well as to return, to make a payment (in money, kind or service) as by a tenant to a superior, and to pay in due (a tax or tribute). The origin for all these uses of the term is the Latin *reddere*: 'to give back'. There are also more specialised meanings. In computer science, rendering refers to techniques, including chroma key compositing<sup>xii</sup>. In law, rendition is surrender or a handing over of persons or property, particularly from one legal jurisdiction to another. For criminal suspects, extradition is the most common type of rendition. Extraordinary rendition or irregular rendition is the government-sponsored kidnapping and extra-judicial transfer of a person from one country to another.<sup>xiii</sup>

Working across the meanings of rendition in these two cases, we propose rendering as a key compositional process today. Steyerl's account provides a way to recognise the skills of editing. Editing, she says, is:

... being expanded by techniques of encryption – techniques of selection – and ways to keep material safe and to distribute information. Not only making it public, divulging or disclosing, but really finding new formats and circuits for it. I think this is an art that has not yet been defined as such, but it is, well, aesthetic. It's a form. ... Now it's not only about narration but also about navigation, translation, braving serious personal risk, and evading a whole bunch of military spooks. It's about handling transparency as well as opacity, in a new way, in a new, vastly extended kind of filmmaking that requires vastly extended skills. (Steyerl and Poitras, 2015: 311)

In line with our emphasis on composition, Steyerl proposes that the question of how information is 'stored, secured, circulated, redacted, checked, and so on ... [the] entire art of withholding and disseminating information and carefully determining the circumstances' is a 'formal decision'. She too emphasizes that this formal decision has an unstable temporality:

When I'm working with *After Effects*,<sup>xiv</sup> there is hardly any real-time play back. So much information is being processed, it might take two hours or longer before you see the result. So editing is replaced by rendering. Rendering, rendering, staring at the render bar. It feels like I'm being rendered all the time.

What do you do if you don't really see what you edit while you're doing it? You speculate. It's speculative editing. You try to guess that what it's going to look like if you put key frames here and here and here. Then there are the many algorithms that do this kind of speculation for you. (Steyerl and Poitras, 2015: 312)

In dialogue with Steyerl, the filmmaker Laura Poitras discusses the programme TREASUREMAP used by the US National Security Agency (NSA) to provide analysts with 'a near-real-time map of the Internet and every device connected to it'. She suggests that at the core of the NSA's approach to data collection is 'retrospective querying - how to see narrative after the fact' (Steyerl and Poitras, 2015: 312). In our terms, even though the feedback loops of the photographic gesture may be consistently paused for contemplation, 'real-time developments' constantly render each framing 'merely' historical. As Kurgan says, the map that emerges from contemporary practices of composition is neither a top-down view, nor a bottom-up account, but both.

Identify an area. Zoom in and examine the specific conditions. Zoom out and then consider both scales at the same time. The resulting image is no longer hard data. It is a soft map that is infinitely scalable, absolutely contingent, open to vision and hence revision. (2013: 204)

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

In practices of rendition, an appearance may rest upon a disappearance: the Chibok girls appear as the disappeared but their missing neighbours do not. However, even when something appears, it can change colour, become blurred or smeared as the ground is suddenly pulled out from under the observer. As Bochner says in relation to certain recent art, frustration is an understandable response:

Frustration because the viewer is looking for a complete 'idea' and is foiled. What is thought and what is experienced continually replace each other. The concealed is the source of thought. And thought, which we hoped to use to 'fill in the gaps', is in itself bottomless or ... incomplete. (2008: 49)

In the unstable circuits of contemporary surfaces of visualisation that emerge in the gesture of photography, it seems that what we once could see but is no longer visible is rendered co-existent with what is not yet, but can be visualised. Techniques of pre-emption make loops in time that secure a ground which is not stable, and frustration mutates into 'insecurity' in the highly contingent relations of proximal intimacy emerging across situations.

**Conclusion: 'I want to show that there is no resolution, no firm ground. Everything that is given is immediately taken away.' (Bochner, 2008: 166)**

In this paper, we have investigated two very different examples of disappearance in terms of composition. We drew on Flusser's account of the gesture of photography, an account that led us to focus on the recursive organisation of a tri-partite set of relations: the search for a place or position from which to observe a changing situation; the change or manipulation of the situation, adapting it to the chosen position; and the setting up of a relation from which to judge the success or failure of this adaptation. By drawing attention to the changing inter-relationships of changing positions of observation in changing environments in terms of composition, we showed how surfaces of visualisation emerge from a patterning of relations of observation that we described as rendition. We showed that relations of observation are both formal and constitutive of events.

An interest in the constitutive role of knowledge practices (including observation) is evident in a range of recent approaches. In a discussion of ratings in finance, for example, Esposito argues that the economy has 'evolved towards an increasing abstraction of its criteria and its operations (expressed by finance), abandoning any reference to the world and its data' (2013: 3). She then generalizes her analysis to make the claim we introduced earlier, namely

that 'modern society has moved in every field from first-order observation to second-order observation'. In her discussion of the field of genetics, Franklin discusses Rabinow's prediction in 1992 that we would see the 'truly new form of autoproduction called biosociality' involving 'the formation of new group and individual identities and practices arising out of . . . [the] new truths' of the human genome project. She suggests that one of the distinctive features of biosociality is that the direction of analogical flow – from nature to culture – is 'reversed, so it flows backwards' (2014: 245). The change, she says, is not only 'one of relationalities (biosocial identities, connections and groups) but also of context and perspective (molecularization)' (2014: 245); indeed, her proposal is that 'context itself can change, and be changed' as the result of what she calls analogic return (2014: 244).

The examples of finance and the biological sciences are of interest because they demonstrate the way in which the travel of analogies or comparisons constitutes operations, identities and hierarchies of specific forms of expertise. However, our examples indicate that comparisons may operate across contexts with extreme lability, making it difficult to generalize understandings of 'hierarchical' orders of observation or 'directions' of traffic flow. While the examples we have discussed differ in many respects, they both speak to the specificity of contemporary surfaces of visualisation, in which each dis/appeared and re/appeared is composed as a generic singularity – an event that emerges, fractionally, *across* time and space. The recursive operation of 'across' locates observers both inside and outside the image that they (we) see, requiring us to refocus and re-proportion our vision (Jiménez 2014). As both a preposition and an adverb, 'across' can imply one or all of: moving from side to side or crossing a space; a width or spaces as a whole and relative positions in that space; and the process of moving as when a smile spreads across a space. 'Across' thus describes techniques of observation that do not operate between fixed positions, but constitute the contexts they bring in relation to each other, partially and (dis-)proportionally, in and as a particular form of relation with particular consequences for 'people's capacity to hold and make their history present' (Jiménez, 2014: 28). Not only are we up close at a distance, as Kurgan puts it, we are also beside, or next to, from above. It is to capture the compound, distributed and consequential nature of this relation that we have proposed a vocabulary of composition, rather than either that of first and second order observation or the language of analogic return. It is only when we acknowledge that not all scales can be matched or directions reversed that the blue planet, whose centre is everywhere but whose circumference is nowhere (Borges 1993), can come into view.



One final observation can be made as if from the position of the object observed, from Žižek's *The Parallax View*. As is well known, parallax describes the displacement or difference in the apparent position of an object viewed along two different lines of sight. It thus provides a way to consider the position of the subject observing. It is said, for example, to be the basis of depth perception and can also be used to establish the distance between seer and seen. Žižek suggests further that the relation established in a parallax view is not unidirectional:

... the subject's gaze is always-already inscribed into the perceived object itself, in the guise of its 'blind spot,' that which is 'in the object more than object itself', the point from which the object itself returns the gaze. Sure the picture is in my eye, but I am also in the picture. (2006: 17)

As Chow would put it, the blue planet is the age of the world target.

---

<sup>i</sup> These sites were constructed in the 1950s and 60s to test the resolution of airborne cameras and drones. According to the Center for Land Use Interpretation (<http://www.clui.org>) most of them follow the same general lay-out: a rectangular concrete or asphalt pad constructed flat on the ground, coated in heavy black and white paint. The pattern painted on the targets comprises sets of parallel and perpendicular bars, and, sometimes, a large white square: the smallest group of bars marks the limit for the optical instrument that is being tested. They have been described by Michael Connor as 'a kind of optometrist's chart for the ancestors of drones' (<http://rhizome.org/editorial/2013/may/31/hito-steyerl-how-not-to-be-seen/>).

<sup>ii</sup> Esposito draws on the distinction made by Luhmann (1988), namely, that while first order observation observes things, second order observation observes things, including other observers, in their environment of observation.

<sup>iii</sup> In the introduction to a collection of essays in which he discusses a whole series of gestures, Flusser says that 'gesture is a movement of the body or of a tool connected to the body for which there is no satisfactory causal explanation'. He continues, 'And I define *satisfactory* as that point in discourse after which any further discussion is superfluous' (2014: 2).

<sup>iv</sup> A serial number inside the wing piece found on the beach corresponds with that recorded by the Spanish company that supplied the piece to Boeing, which built the plane in 2002. On its own, this discovery and the others that have followed at the time of writing neither confirm nor contradict crash investigators' beliefs, based on radar data and satellite signals, that the plane went down somewhere in an empty stretch of the Indian Ocean, southwest of Australia.

<sup>v</sup> At [https://en.wikipedia.org/wiki/Search\\_for\\_Malaysia\\_Airlines\\_Flight\\_370#/media/File:Reunion\\_debris\\_compared\\_to\\_MH370\\_flight\\_paths\\_and\\_underwater\\_search\\_area.png](https://en.wikipedia.org/wiki/Search_for_Malaysia_Airlines_Flight_370#/media/File:Reunion_debris_compared_to_MH370_flight_paths_and_underwater_search_area.png) (consulted January 2016)

<sup>vi</sup> The provenance of #BringBackOurGirls is widely contested. In one account, the first use was on April 23 2014 by Ibrahim Abdullahi, a corporate lawyer in Abuja, Nigeria. He, however, credits the phrase to a former vice president of the World Bank for the Africa region, Obiageli Ezekwesili, who said the four words in a TV appearance. NBC News covered the so-called hashtag wars in which Kimberly C. Ellis claimed that Ramaa Devi Mosley, a Los Angeles filmmaker, 'essentially stole an African woman's voice, a Nigerian woman's voice, who started the phrase and started the movement' (<http://www.nbcnews.com/tech/social-media/hashtag-wars-whos-behind-nigeria-bringbackourgirls-movement-n100771>).

<sup>vii</sup> According to Amnesty International, 2,000 women were kidnapped in Nigeria during the first four months of 2015.

<sup>viii</sup> Similarly, Murphy (2013) has traced the spiralling investments in what she calls the 'Girl Effect', that is, the use of the girl as an ascendant 'transnational figure of rescue and investment', charged with speculative futures.

<sup>ix</sup> This Israeli campaign aims to 'Stop the terrorism against Israel & help us #BringBackOurBoys! A search for '#bringback' in Twitter (May 2015) yielded, first, #bringbackourgirls, second, in reference to the Charlie Hebdo shooting in Paris, #bringbackcharlie, third, #bringbackcrystalpepsi and, in fourth place, #bringbackthenhs. Each of the terms is constituted in and constitutive of many and sometimes partially overlapping grounds of observation.

<sup>x</sup> To illustrate the way in which movement and position need not be either subsequent or anterior to observation, but may be already included, consider the history of axonometric projection as described by the art historian Yve-Alain Bois and discussed by Kurgan. An axonometric drawing shows an object in ways that cannot be seen simply by looking at it from a single position. To achieve this projection, an object is typically rotated along one or more of its axes such that the surface of the top and two sides are in view simultaneously. This mode of projection has been variously employed by computer scientists, as well as architects and artists, who use graph theory to produce 'flat' networks with 'non'-perspective.

<sup>xi</sup> The use of search terms provides a related illustration of de- and re-composition of hierarchical orders of observation, of the ground being pulled from under the feet of the observer. In a discussion of metadata, Boellstorff (2015) shows how these terms, which he considers to be a prototypical example of 'metadata', can become 'data' in some social practices. One example he provides concerns the use of searches to track possible influenza outbreaks. Another example occurred when LGBT activists responded to the heterosexual stance of former Pennsylvanian congressman Rick Santorum by consistently using his name as part of a search string for sexual fluids, temporarily pushing a 'spreadingsantorum.com' Website to first place in Google's results for the term 'santorum'. In instances like these, Boellstorff argues, phenomena typically classed as meta-communication act as forms of communication. In our vocabulary, the way in which search terms perform comparison across contexts can be understood as an instance of the gesture of photography such that 'above' is always in tension with 'beside'.

<sup>xii</sup> This is a post-production technique for joining two or more images or video streams together based on colour hues.

<sup>xiii</sup> The United States and the United Kingdom are known to have 'renditioned' prisoners to nations that practice torture, which is known as torture by proxy.

<sup>xiv</sup> *Adobe After Effects* is a digital visual effects, motion graphics application developed by Adobe Systems. It is used in the post-production process of filmmaking and television production. Among other things, *After Effects* can be used for keying, tracking, rotoscoping, compositing and animation. It also functions as a basic non-linear editor, audio editor and media transcoder.

References

- Bateson, G., Jackson, D. D., Haley, J. & Weakland, J. (1956) 'Towards a Theory of Schizophrenia', *Behavioral Science*, 1: 251–264.
- Bateson, G. (1987 [1972]) *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*, Chicago: University of Chicago Press.
- BBC News, 'Nigeria's Chibok girls seen with Boko Haram in Gwoza', 14 April 2015, URL (consulted May 2015): <http://www.bbc.co.uk/news/world-africa-32292854>
- BBC News, 'Boko Haram freed Nigerian women tell of captivity horror', 4 May 2015, URL (consulted May 2015): <http://www.bbc.co.uk/news/world-africa-32574777>
- Bochner, M. (2008) *Solar System and Rest Rooms: Writings and Interviews, 1965-2007*, Cambridge, Mass.: The MIT Press.
- Boellstorff, T. (2015) 'Making Big Data, in Theory', pp. 87-108 in T. Boellstorff and B. Maurer (eds.) *Data, Now Bigger and Better!*, Chicago: University of Chicago Press.
- Bonnici, T. 'Kidnapped Boko Haram girls make long walk to freedom.' *The Times, Africa*, 12 October 2014, cited in Wikipedia.
- Borges, J. L. (1993) 'Pascal's Sphere', URL (consulted May 2015) <http://www.filosofiaesoterica.com/ler.php?id=1355#.Vo1fhPmLTcs>.
- Chow, R. (2006) *The Age of the World Target: Self-Referentiality in War, Theory, and Comparative Work*. Durham, North Carolina: Duke University Press.
- Crary, J. (1990) *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. Cambridge, Mass.: The MIT Press.
- Day, S., Lury, C., and Wakeford, N. (2014) 'Number ecologies: numbers and numbering practices', *Distinktion*, 15(2): 123-154.
- Dearden, L. (2015) 'Chibok kidnappings: Schoolgirls may never be brought home, Nigeria's President-elect admits', *The Independent*, 14 April 2015.
- Esposito, E. (2013) 'Economic circularities and second-order observation: the reality of ratings', *Sociologica*, no. 2, URL (consulted 2015): <http://www.sociologica.mulino.it/doi/10.2383/74851>
- Flusser, V. (2014) *Gestures*, Minneapolis: Minnesota University Press.
- Foerster, H. von (1995) *Anthology of principles, propositions, theorems, roadsigns, definitions, postulates, aphorisms etc.*, URL (consulted September 2015): <http://www.cybsoc.org/heinz.htm>.
- Franklin, S. (2014) 'Analogic return: the reproductive life of conceptuality', *Theory, Culture and Society*, vol. 31 no. 2-3: 243-261.

- 
- Halpern, O. (2014) *Beautiful Data*. Durham and London: Duke University Press.
- Jiménez, A. C. (2014) 'The form of the relation, or anthropology's enchantment with the algebraic imagination', <http://digital.csic.es/bitstream/10261/98307/1/the%20form%20of%20the%20relation.pdf>.
- Khoja-Moolji, S. (2015) 'Becoming an "Intimate Publics": Exploring the Affective Intensities of Hashtag Feminism', *Feminist Media Studies*, 15, 2: 347-50.
- Kurgan, L. (2013) *Close Up at a Distance: Mapping, Technology and Politics*, New York: Zone Books.
- Luhmann, N. (1998) *Observations on Modernity*. Stanford, California: Stanford University Press.
- Morse, F. 'The Bring Back Our Girls Campaign is working: Boko Haram should be scared of a hashtag'. *The Independent*, 13 May 2014.
- Moskatova, O. (2013) 'Re-inscriptions: microscopy of time and motion', pp. 96-116 in C. Taban (ed.) *Meta- and Inter-Images in Contemporary Visual Art and Culture*, Leuven: Leuven University Press.
- Murphy, M. (2013) 'The Girl: Mergers of Feminism and Finance in Neoliberal Times', *The Scholar and Feminist Online*, 11.2., URL (consulted 2014): <http://sfonline.barnard.edu/gender-justice-and-neoliberal-transformations/the-girl-mergers-of-feminism-and-finance-in-neoliberal-times/>
- Nayar, P. K. 'The Violence of Disappearance: Reading the Boko Haram Kidnapping', URL (consulted September 2015): [http://www.esocialsciences.org/Articles/ShowPDF/A20155495757\\_41.pdf](http://www.esocialsciences.org/Articles/ShowPDF/A20155495757_41.pdf)
- Smith, C. (2015) *The technology of hope: twitter and the #BringBackOurGirls campaign*. MA Dissertation, Royal Roads University, Canada, URL (consulted September 2015): <https://dspace.royalroads.ca/docs/handle/10170/842>
- Smith, D., Sherwood, H., and Soal, J. (2014) 'Nigerian schoolgirls' home town in despair after president cancels visit.' *The Guardian*, 16 May 2014.
- Stark, D. (2009) *The Sense of Dissonance*, Princeton NJ: Princeton University Press.
- State Department Daily Press Briefing 14 April 2015, URL (consulted September 2015): <http://iipdigital.usembassy.gov/st/english/texttrans/2015/04/20150414314665.html?CP.rss=true#axzz3bi7EP2bq>
- Steyerl, H. (2011) 'In free fall: a thought experiment on vertical perspective', *e-flux journal* #24, URL (consulted May 2015): <http://www.e-flux.com/journal/in-free-fall-a-thought-experiment-on-vertical-perspective/>

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

---

Steyerl, H. and Poitras, L. (2105) 'Techniques of the observer', *Artforum*, May, pp. 306-317.

Strathern, M. (2004 [1991]) *Partial Connections, Updated Edition*. Walnut Creek: Altamira Press.

VICE Acid, Passion and Dried Blood: Photos from Murder Scenes in 1880s Paris, March 31, 2015, photos by Glenn Cloarec, URL (consulted May 2015):  
[http://www.vice.com/en\\_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876](http://www.vice.com/en_uk/read/crime-and-death-in-paris-philippe-charlier-photography-876)

Virilio, P. (1989) *War and Cinema: The Logistics of Perception*. London: Verso.

Weizman, E. (2012) *Hollow Land: Israel's Architecture of Occupation*. London: Verso.

Wikipedia, Chibok Schoolgirls Kidnapping, URL (consulted May 2015):  
[https://en.wikipedia.org/wiki/Chibok\\_schoolgirls\\_kidnapping](https://en.wikipedia.org/wiki/Chibok_schoolgirls_kidnapping)

Day, S. and Lury, C. (2016) 'Biosensing: tracking persons', in D. Nafus (ed.) *Biosensors in Everyday Life*. Cambridge, Mass.: The MIT Press.

Žižek, S. (2006) *The Parallax View*. Cambridge, Mass.: The MIT Press.

Sophie Day is Professor of Anthropology at Goldsmiths, and Visiting Professor at the School of Public Health, Imperial College London. She is currently working on personalization in medicine within Imperial BioMedical Research Centre's Patient Experience Research Centre.

Department of Anthropology  
Goldsmiths  
New Cross  
London SE14 7NW  
[s.day@gold.ac.uk](mailto:s.day@gold.ac.uk)

Celia Lury is Professor and Director of the Centre for Interdisciplinary Methodologies, Warwick University. The topic of her ESRC Professorial Fellowship is 'Order and Continuity: Methods for Change in a Topological Society', ES/K010689/1.

Centre for Interdisciplinary Methodologies  
Warwick University  
Gibbet Hill  
Coventry CV4 7AL.  
[c.lury@warwick.ac.uk](mailto:c.lury@warwick.ac.uk)

Dear Mike,

Thank you for the helpful feedback on our article, which we are now resubmitting with minor revisions. We are not sending a track change version of the paper since the changes have been made between the two of us and are quite extensive. Instead, we indicate here how we have responded to the points raised by the editorial board and reviewers.

#### Editorial board

We would ask you to produce a revised version that takes into account and the following suggestions:

1. The argument is often too subtle, and the introduction could state more clearly the main purpose of the paper and introduce the terms.

*We have made the introduction still more direct, adding a summary paragraph and indicating why we think the analysis of two cases of disappearance in terms of relations of observation matters.*

2. Suggestions to look at Virilio and Baudrillard.

*There is a reference to Virilio and we thought a fuller discussion, or introducing Baudrillard, would make the flow of the piece difficult to follow once more. So we have not added these.*

3. Title

*We have replaced the title as you suggested.*

4. Cybernetics discussion

*We have cut the references to cybernetics so as to simplify the argument. We have expanded our discussion of Flusser and clarified its relevance to in/visibility*

5. Integrating the two disappearances with the discussion of key concepts.

*We have threaded the discussion of concepts through the two examples more extensively.*

6. I have enclosed a number of referees' reports that makes a series of

As we wrote previously, we will need further guidance on the TCS instructions - 'As far as we are aware, the images are in the public domain but we would be grateful for any further advice before uploading these at the Author's Centre, and we also wanted to confirm whether they had to be in black and white.'

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

We look forward to your response,

Best wishes  
Sophie and Celia

For Peer Review